

Toxic Air Pollutant Emission Factors
A Compilation for Selected Air
Toxic Compounds and Sources

Radian Corp., Research Triangle Park, NC

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16. ABSTRACT This report presents emission factors for selected air toxic compounds and sources, and associates the emission factors to levels of source activity. The emission factors in this report were compiled from a review of the literature for more than 200 air toxic compounds. This report updates and expands a report entitled <u>Preliminary Compilation of Air Pollution-Emission Factors For Selected Air Toxic Compounds</u>, EPA-450/4-86-010a. Emission factors in this report are sorted by pollutant and source. Each emission factor in the compilation is identified by pollutant name, CAS number, process description, SIC code, emission source description, and SCC's. Also included are brief descriptions of emission factors derivations, notes on control measures associated with factors, and references. A software system containing the air toxics emission factors in the compilation was developed for easy access and updating of the data. Use of the system is explained in the EPA report, <u>Toxic Air Pollutant Emission Factors - Information Storage and Retrieval System User's Manual</u>, EPA-450/2-88-006b. EPA is making available the system to agency users upon request. The purpose of this report is to offer a technical service to air pollution control agencies in performing preliminary estimates of air toxics emissions. The emission factors are not intended to provide exact estimates of releases of air toxics from specific facilities.		
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Toxic Air Pollutant Emission Factors—A Compilation For Selected Air Toxic Compounds And Sources

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MAILING LIST

The Environmental Protection Agency's Office of Air Quality Planning and Standards (OAQPS) is providing technical support to assist State and local air pollution control agencies in developing and implementing air toxics programs. One way that OAQPS provides assistance to agencies and other interested individuals is by compiling and publishing emission data for agencies and others who are interested in locating potential emitters of toxic air compounds and in making preliminary estimates of toxic air emissions. These reports published by EPA are introductory documents only, and they are not intended to provide exact estimates of air toxics releases from specific facilities. EPA will update and expand these reports and publish new documents as toxic air emissions data are obtained. If you would like to receive notice of any new or updated air toxics emissions reports or if you have any additional air toxics emissions data, please complete the following mailing list form and mail it to the address on the form.

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SECTION 1. INTRODUCTION

The Environmental Protection Agency and State and local air pollution control agencies are in the process of developing programs to control air toxics. The development of an air toxics program requires information about the types, sources, and emissions of pollutants in a geographic area. One of the major components of an air toxic program is an assessment of the quantities of toxic compounds present in an area. Specific emissions measurements are generally the best and most accurate way to quantify emissions; however, measurement data are not always available. An alternate method of estimating air toxics emissions is by using emission factors. This report presents a compilation of emission factors for selected toxic air pollutants and sources of toxic air pollutants. The purpose of this report is to offer a technical service to air pollution control agencies in performing preliminary estimates of air toxics emissions.

An emission factor relates the quantity of a pollutant released to the atmosphere with a source activity (e.g., stripping, storage, absorption, combustion, handling, etc.). Emission factors are usually expressed by units of mass of pollutant emitted per unit of mass, volume, heat input, distance, or duration of a process that emits the pollutant (e.g., kg pollutant emitted per Mg of product). Sections 3 and 4 present listings of emission factors for selected toxic air pollutants and sources and associates the emission factors to levels of source activity for pollutants. For example, in the smelting of copper, trace elements such as arsenic or nickel may be emitted. An emission factor such as "X" lb nickel/ton blister copper produced, could be used to estimate nickel emissions from the smelter.

The emission factors presented in this report are compiled from a review of the literature. This report updates and expands an earlier EPA report entitled Preliminary Compilation Of Air Pollutant Emission Factors For Selected Air Toxic Compounds (EPA-450/4-86-010a, April 1987). The current compilation expands the preliminary report to include factors for approximately 200 compounds. To update and expand the preliminary compilation, the data in the preliminary compilation were reviewed to determine the types of data that were likely to be available. A computerized literature search of the following databases for articles and reports published since 1970 was conducted - Chem Abstracts, NTIS, Enviroline, Pollution Abstracts, Compendex, Environmental Bibliography, EI Engineering Meetings, DOE, and APTIC. Emission factors were compiled from journal articles and reports identified by the literature search and from published and unpublished data provided by EPA staff. The primary sources of information of air toxics emission factors were published and unpublished EPA reports. Original source test data and supporting data were not collected and analyzed to develop new emission factors for this report.

Section 2 of this report describes the components of the emission factor tables and explains the uses and shortcomings of the information. Sections 3 and 4 contain the emission factor tables. Section 3 presents the emission factor data sorted by pollutant name. Section 4 presents the same factors sorted by industrial process (i.e., charcoal manufacturing, smelting, petroleum refinery, chloroform production, etc.).

A software system containing the air toxics emission factor data has been developed to allow for easy access to the data. This software is an IBM PC based application that presents emission factors associated to pollutant names, Chemical Abstracts Service (CAS) numbers, industrial process descriptions, Standard Industrial Classification (SIC) codes, specific emission source descriptions, and Source Classification Codes (SCC's). The data management system allows one to search, edit, add or delete data and to print individual emission factors or tables of selected factors. The system has been designed specifically for easy data manipulation, even by fairly inexperienced users. No specific programming knowledge is required to search, add, edit, or print data. Use of the system is explained in a user's manual entitled Toxic Air Pollutant Emission Factors - Information Storage And Retrieval System User's Manual (EPA-450/2-88-006b). The user's manual and data system are available from EPA upon request. Users will need an IBM PC compatible computer with 512 kilobytes of random access memory and a hard disk with at least 5 megabytes of free storage. Requests for the system and the user's manual can be made by contacting the Noncriteria Pollutant Programs Branch, U.S. EPA, OAQPS, MD-15, Research Triangle Park, North Carolina 27711, or by calling (919) 541-5373 or (FTS) 629-5373.

This compilation for air toxics emission factors will be updated and expanded as new information is obtained on process descriptions, operating practices, control measures, and emissions data. Comments on the usefulness of this document are welcomed as is any emissions information that would allow EPA to update and expand this list of toxic air emission factors.

SECTION 2. USE OF EMISSION FACTORS IN COMPILATION

The emission factors compiled in this report are presented in Sections 3 and 4. The data included in these sections for each entry are:

- chemical name and CAS number,
- industrial process description and SIC code,
- specific emission source description and SCC,
- emission factor, and
- notes and references.

CAS numbers, SIC codes, and SCC's are used in this compilation to provide a means of identifying, in standard terminology, pollutants, industrial processes and specific emission processes/sources. For some substances, CAS numbers are not available for groups of chemicals such as polycyclic organic matter (POM). If CAS numbers are not available, no CAS number is assigned in the tables. Similarly, SIC codes or SCC's may not be available for some sources and processes and are not included in Sections 3 and 4.

Table 2-1 lists alphabetically the air toxics and their respective CAS numbers and chemical synonyms, if available, contained in this report. Because available information on air toxics emissions is limited, emission factors are only provided for selected air toxic compounds and not for all identified air toxics. The list of pollutants in Table 2-1 represents air toxics for which emissions data are available.

The SIC codes associated to the factors are broad descriptors of industry segments that are used throughout the Government to define industries in accordance with the composition and structure of the economy. For this reason, the SIC codes may not represent specific emitting sources. In this compilation, SIC codes are unavailable for some industrial processes such as wood combustion, coal fired boilers, or landfills.

The SCC's represent processes or functions within a source category associated with a point of air pollutant emissions. The National Emissions Data System (NEDS) uses SCC's to associate criteria pollutants with emission factors for various sources. SCC's are included in this document primarily for identification purposes. The units for factors presented in Sections 3 and 4 do not necessarily correspond to the units of factors listed in NEDS having identical SCC's. For example, the toxics factor for carbon black manufacturing may show "X" g POM emitted/kg product from the dryer, whereas the NEDS factor for the same SCC is "X" lb particulate matter/ton carbon black produced. Users should be aware of this difference and consider it if applying these emission factors to the SCC's in NEDS. It is anticipated that future updates of this report will use SCC's consistent with NEDS.

Brief descriptions of the industrial processes and specific emission sources are included for each emission factor in Sections 3 and 4. Generally, the industrial process descriptions correspond to SIC codes, and the specific emission source descriptions correspond to SCC's. For example in Section 3, the SIC code listed for the industrial process described as "urea manufacture" is 2873, and the SCC shown for the specific emission source described

as "prill tower" is 3-01-040-03. Table 2-2 contains a list of the industrial processes that have emission factors in the compilation.

The emission factors in Sections 3 and 4 are listed usually in terms of mass of pollutant per mass of product produced (i.e., 0.4 g ammonia/kg urea product). When no other data are available, some factors are presented in units of mass per time (g/sec, lb/day, kg/hr, etc.).

Sections 3 and 4 also contain additional information in the "Notes" part of each emission factor listing as well as references for each factor. Brief descriptions concerning the derivation of emission factors (mass balance, test data, engineering judgment) and any assumptions that have been made to derive the factors are shown in the "Notes". For some toxic air pollutants, emission factors associated with processes or operations are further characterized in the "Notes" by the presence or absence of emission reduction techniques or controls. For many of the controlled operations, the type of emission reduction control is identified. However, the emission reduction techniques in this report do not necessarily represent the best available control technology (BACT) or reasonably available control technology (RACT). References are also included for each factor in this compilation. The references may be consulted for more detailed information on the factors.

The quality of emission factors presented in this compilation varies considerably. Emission factors are derived in a variety of ways including source tests, theoretical calculations, or a combination of both tests and calculations. Extensive analyses of source tests or a single source test may be used to derive some of the factors in this compilation. Other factors are calculated by using material balances or national emissions estimates divided by national production capacities for chemicals. The Notes in Sections 3 and 4 provide a brief description of the basis of each factor, such as whether it is derived from source tests, engineering judgment, or other methods. References are also given so that the user can obtain more information about a specific factor.

The data depth of the factors contained in this report is also highly variable. For some processes, emission factors are available for individual release points or unit operations within processes. In other cases, factors are only available for an entire process or emission source. This is illustrated in Section 3 for carbon tetrachloride. Carbon tetrachloride is emitted when it is produced as a product, by-product or intermediate during various processes and when it is used to formulate other compounds. Emission factors for carbon tetrachloride releases from perchloroethylene production are listed for neutralization, drying, distillation, and other operations; whereas only a single factor for the emissions of carbon tetrachloride from pharmaceutical production facilities is shown.

Emission factors are very useful tools for estimating emissions of toxic air pollutants. In many cases, these factors are simply averages of all available tools and do not generally consider the influence of various process design parameters such as temperature, age of equipment, reactant concentration, etc. If the emission factors were correlated to process design variables, they would provide more precise emission estimates than factors in this report. Because insufficient data exist to determine the accuracy or validity of the emission factors in this compilation, no estimates can be

made of the error that results from using these factors to calculate toxic air emissions from any given facility.

The emission factors in this report are intended to be used for making preliminary estimates of toxic air emissions from various sources of air pollution. Emission factors are more appropriately used to estimate the collective emissions of a number of sources, such as in an emissions inventory for a selected geographic area. The emission factors in this compilation will not likely provide exact estimates of emissions from any particular facility. Because these factors are obtained from data of wide range and varying degrees of accuracy, emissions calculated for a given facility using these factors are likely to differ from the actual emissions of the facility. In some cases, the differences in emissions estimated from emission factors and actual emissions could vary significantly. Only specific source measurement can determine the actual emissions of a pollutant under conditions at the time of a test. For the most accurate emissions estimates, source specific data should be obtained whenever possible. When source specific data are not available, emission factors can be used to estimate emissions. More accurate air toxics emission estimates can be made by using information contained in the primary references listed in Sections 3 and 4 in addition to the emission factors.

Emission factors are one method used to estimate emissions of air toxics from sources. Inputs needed to calculate emissions using emission factors include:

1. Activity information about sources (amount of product produced, fuel used, etc.)
2. Emission factors to translate activity information into "uncontrolled" emission estimates, and
3. Control device efficiency information to provide basis for estimation of emissions to the atmosphere after passage through a control device.

The basic emission estimation algorithm is:

$$E = R \times EF \times (1 - C/100)$$

where:

- E = emission estimate for source
- R = activity level
- EF = emission factor
- C = control device efficiency.

The accuracy of the emission estimate is equally dependent upon the relative accuracy of each of the components. Errors introduced by any one of these components affect the final emission estimate.

To illustrate the application of emission factors, an example is provided for acrylonitrile. If an agency decides to estimate air releases of acrylonitrile in an area, it could make preliminary estimates of emissions by using emission factors in Section 3 and data on material usage records,

permit applications, or inspector records of facilities producing or using acrylonitrile. However, it must be emphasized that these estimates can vary greatly from actual emissions because the factors are based on releases from hypothetical plants with hypothetical emission controls. To develop a more accurate emissions estimate, the primary reference listed in Section 3, "Locating and Estimating Air Emissions From Sources Of Acrylonitrile", should be reviewed. A comparison of the process parameters of the hypothetical plant contained in the primary references and of those of the actual facility allows the agency to determine the sources of error associated with using the emission factors and to produce more realistic emission estimates. If source specific data are not available, then the agency should view the calculated emissions of acrylonitrile as only a preliminary estimate.

TABLE 2-1. LIST OF AIR TOXICS HAVING EMISSION FACTORS IN COMPILATION

COMPOUNDS	CAS NUMBER	CHEMICAL SYNONYM
Acetaldehyde	75070	Ethanal
Acetic acid	64197	Ethanoic acid
Acetone	67641	Dimethyl ketone, Propanone
Acetonitrile	75058	
Acetophenone	98862	
Acetylene	74862	
Acrolein	107028	Acrylic aldehyde, 2-Propenal
Acrylic acid	79107	Propenoic acid
Acrylonitrile	107131	Propenenitrile
Adipic acid	124049	Hexanedioic acid
Aldrin	309002	
Allyl chloride	10751	3-Chloroprene
Aluminum	7429905	
Ammonia	7664417	Anhydrous ammonia
Ammonium sulfate	7783202	
Aniline	62533	Phenylamine, Aminobenzene
Anthracene	120127	Paranaphthalene
Anthraquinone	84651	Diphenylene ketone
Antimony	7440360	
Arsenic	7440382	
Asbestos	1332214	
Barium	7440393	
Benzene	71432	
Benzo(a)pyrene	50328	3,4-Benzpyrene
Benzoic acid	65850	
Beryllium	7440417	
Biphenyl	92524	
Bis(2-ethyl hexyl)phthalate	117817	
Boron	7440428	
Bromochlorobenzene	106598	
Bromodichloromethane	75274	
Bromodinitroaniline	1817738	
Bromodinitrobenzene	584485	
Butadiene, 1,3-	106990	Divinyl, Biethylene
Butane	106978	
Butenal	4170303	
Butyl alcohol, sec	78922	
Butyl benzoate		
Butylbenzene	104518	
Butyraldehyde	123728	
Cadmium	7440439	
Caprolactam	105602	
Carbon disulfide	75150	
Carbon tetrachloride	56235	Tetrachloromethane
Carbonyl sulfide	463581	
Chlordane	57749	
Chlorine	7782505	

TABLE 2-1. Continued

COMPOUND	CAS NUMBER	CHEMICAL SYNONYM
Chloro-m-cresol, p-	119335	
Chlorobenzene	108907	Monochlorobenzene
Chlorobenzenes		
Chloroform	67663	Trichloromethane
Chlorophenol, 2-	95578	
Chlorophenols		
Chloroprene	107051	2-Chloro-1,3-butadiene
Chromium	7440473	
Chromium (+6)	18540299	
Cobalt	7440484	
Coke oven emissions		
Copper	7440508	
Creosote		
Cresol, o-	95487	Cresylic acid, o-
Cresol, p-	106445	Cresylic acid, p-
Cumene	98828	
Dibenzofuran	132649	
Dibutyl phthalate	84742	
Dichlorobenzene, 1,2-	95501	Dichlorobenzene, o-
Dichlorobenzene, 1,3-	541731	Dichlorobenzene, m-
Dichlorobenzene, 1,4-	106467	Dichlorobenzene, p-
Dichlorobenzenes	25321226	
Dichlorodibenzodioxin (total)		
Dichlorodibenzofurans, total		
Dichloroethane	75343	
Dichloroethane, 1,1-	75343	
Dichloroethylene, 1,1-	75354	
Dichloroethylene, cis-	156592	
Dichloroethylene, trans-	156605	
Dichloronitroaniline		
Dichlorophenol, 2,4-	120832	
Dichloropropane	78875	
Diethyl phthalate	84662	
Diethylene glycol methyl ether	111773	
Dimethyl formamide	68122	
Dimethyl phthalate	131113	
Dimethyl styrene		
Dimethylphenol, 2,4-	105679	
Dinitro-o-cresol, 2,6-	534521	
Dinitrophenol, 2,4-	51285	
Dioxane, 1,4-	123911	Dioxane, Diethylene dioxide, Dioxan
Dioxins/dibenzofurans		
Diphenyl ethane	103297	
Diphenyl oxide	101848	
Dipropyl phthalate	131168	
Divinyl benzene	1321740	

TABLE 2-1. Continued

COMPOUND	CAS NUMBER	CHEMICAL SYNONYM
Epichlorohydrin	106898	Chloropropylene oxide
Ethanol	64175	Ethyl alcohol
Ethyl acrylate	140885	
Ethyl benzene	100414	
Ethyl chloride	75003	Chloroethane
Ethyl styrene		
Ethylene	74851	
Ethylene dibromide	106934	1,2-Dibromoethane
Ethylene dichloride	107062	1,2-Dichloroethane
Ethylene glycol	107211	
Ethylene glycol methyl ether	109864	
Ethylene oxide	75218	1,2-Epoxyethane
Ethylhexanol, 2-	123057	
Fluoride	16984488	
Fluorides		
Fluorine	7782414	
Formaldehyde	50000	Formalin, Methylene oxide
Gasoline vapor	8006619	
Heptachlorodibenzo-p-dioxins		
Heptachlorodibenzo-p-dioxins, total		
Heptachlorodibenzofurans		
Heptachlorodibenzofurans, total		
Hexachlorobenzene	118741	Perchlorobenzene
Hexachlorocyclopentadiene	77474	
Hexachlorodibenzo-p-dioxin, 1,2,3,4,7,8-	57653857	
Hexachlorodibenzo-p-dioxin, 1,2,3,6,7,8-	34465468	
Hexachlorodibenzo-p-dioxin, 1,2,3,7,8,9-	19408743	
Hexachlorodibenzo-p-dioxins		
Hexachlorodibenzo-p-dioxins, total		
Hexachlorodibenzofuran, 1,2,3,4,7,8-		
Hexachlorodibenzofuran, 1,2,3,6,7,8-		
Hexachlorodibenzofuran, 1,2,3,7,8,9-		
Hexachlorodibenzofurans		
Hexachlorodibenzofurans, total		
Hydrogen chloride	7647010	
Hydrogen cyanide	74908	
Hydrogen fluoride	7664393	
Hydrogen sulfide	7783064	
Hydroxy-2-phenyl propane		
Isobutane	75285	
Isobutyraldehyde	78842	
Isopentanal	590683	
Lead	7439921	
Maleic anhydride	108316	2,5-Furanedione
Manganese	7439965	
Mercury	7439976	
Methanol	67561	Methyl alcohol

TABLE 2-1. Continued

COMPOUND	CAS NUMBER	CHEMICAL SYNONYM
Methyl acetate	79209	
Methyl chloride	74873	Chloromethane
Methyl chloroform	71556	1,1,1-Trichloroethane
Methyl ethyl ketone	78933	2-Butanone
Methyl methacrylate	80626	Methyl ester, Pegalan
Methyl styrene		
Methylene chloride	75092	Dichloromethane
Molybdenum	7439987	
Monochlorodibenzofurans, total		
Naphthalene	91203	Naphthalin
Naphthoquinone	130154	
Nickel	7440020	
Nitrobenzene	98953	Nitrobenzol
Nitrophenol, 2-	88755	
Nitrophenol, 4-	100027	
Octachlorodibenzo-p-dioxins		
Octachlorodibenzo-p-dioxins, total		
Octachlorodibenzofurans		
Octachlorodibenzofurans, total		
POM		Polycyclic organic matter
Pentachlorodibenzo-p-dioxin, 1,2,3,7,8-	40321764	
Pentachlorodibenzo-p-dioxins		
Pentachlorodibenzo-p-dioxins, total		
Pentachlorodibenzofuran, 1,2,3,7,8-		
Pentachlorodibenzofuran, 2,3,4,7,8-	57117314	
Pentachlorodibenzofurans		
Pentachlorodibenzofurans, total		
Pentachlorophenol	87865	PCP
Perchloroethylene	127184	Tetrachloroethylene, PCE, Perc
Phenol	108952	
Phenols		
Phosgene	75445	Carbon oxychloride, Carbonyl chloride
Phosphorus	7723140	
Phthalic anhydride	85449	PAN
Polychlorinated biphenyls	1336363	PCBs
Polychlorinated dibenzo-p-dioxins		
Polychlorinated dibenzo-p-dioxins, total		
Polychlorinated dibenzofurans		
Polychlorinated dibenzofurans, total		
Polychlorinated dioxins, total		
Polychlorinated furans, total		
Propadiene	463490	Allene
Propane	74986	
Propanol	71238	
Propionaldehyde	123386	

TABLE 2-1. Continued

COMPOUND	CAS NUMBER	CHEMICAL SYNONYM
Propylene	115071	Propene oxide, 1,2-Epoxy propane
Propylene glycol	107982	
Propylene oxide	75569	
Radionuclides		
Selenium	7782492	
Silicon tetrafluoride		
Siloxane	9016006	
Silver	7440224	
Sodium chlorate	7775099	
Sodium hydroxide	1310732	
Strontium	7440246	
Styrene	100425	Phenyl ethylene, Vinyl benzene
Sulfur monochloride	10025679	
Sulfuric acid	7664939	
Sulfuric acid mist	7664939	
Terephthalic acid	100210	
Tetrachlorobenzenes		
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	
Tetrachlorodibenzo-p-dioxins		
Tetrachlorodibenzo-p-dioxins, total		
Tetrachlorodibenzofuran, 2,3,7,8-	51207319	
Tetraclordibenzofurans		
Tetrachlorodibenzofurans, total		
Tin	7440315	
Titanium	7440326	
Toluene	108883	Toluol, Methyl benzene
Trichlorobenzene, 1,2,4-	120821	
Trichlorobenzenes	12002481	
Trichlorodibenzodioxin (total)		
Trichlorodibenzofurans, total		
Trichloroethylene	79016	Ethylene trichloride, TCE, Trichloroethene
Trichlorophenol, 2,4,6-	88062	
Trichloropropane	7789891	
Trichlorotrifluoroethane	761131	
Triethanol	67561	
Triethylene glycol ethyl ether	112505	
Trimethyl amine	75503	
Vanadium	7440622	
Vanadium oxide	1314621	
Vinyl chloride	75014	Vinyl chloride monomer, Chloroethylene
Vinylidene chloride	75354	1,1-Dichloroethylene
Xylene	1330207	Dimethyl benzene
Xylene, m-	108383	Dimethyl benzene, m-

TABLE 2-1. Continued

COMPOUND	CAS NUMBER	CHEMICAL SYNONYM
Xylene, o-	95476	Dimethyl benzene, o-
Xylene, p-	106423	Dimethyl benzene, p-
Zinc	7440666	
Zinc oxide	1314132	

TABLE 2-2. LIST OF SOURCES HAVING EMISSION FACTORS IN COMPILATION

1,3 Diisocyanate production
 1,4 Butanediol production
 Acetaldehyde production
 Acetic anhydride production
 Acetone/phenol manufacture for cumene
 Acrolein production
 Acrylic acid production
 Acrylic acid production - propylene oxidation
 Acrylonitrile production
 Acrylonitrile production - SOHIO process
 Adipic acid production
 Adiponitrile production
 Aerosol packaging
 Agricultural spraying
 Aluminum reduction
 Ammonium nitrate production
 Ammonium phosphate production
 Ammonium sulfate production
 Ammonium sulfate production - caprolactam by-product
 Ammonium sulfate production - synthetic process
 Anhydrous ammonia production
 Aniline production
 Application of adhesives
 Application of fungicide - Pentachloronitrobenzene
 Application of herbicide - Dacthal
 Application of paints
 Application of paints and coatings
 Application of pesticides
 Application of pharmaceuticals containing mercuric compounds
 Asbestos - cement pipe manufacturing
 Asbestos - cement sheet manufacturing
 Asbestos building waste disposal
 Asbestos coatings and sealants manufacturing
 Asbestos friction materials manufacturing
 Asbestos gaskets and packings manufacturing
 Asbestos insulation materials manufacturing
 Asbestos milling
 Asbestos mining
 Asbestos paper manufacturing
 Asbestos product fabrication
 Asbestos product usage
 Asbestos textile manufacturing
 Asbestos-reinforced plastics manufacturing
 Ascorbic acid production
 Asphalt distribution/use
 Asphalt plants
 Asphalt roofing material production
 Asphaltic concrete production
 Automobile carburetor manufacture
 Bagasse-fired industrial boilers
 Battery manufacture
 Beef cattle feed lots

TABLE 2-2. Continued

Beer brewing
 Benzaldehyde production
 Benzene production
 Benzoic acid production
 Benzyl chloride production
 Beryl ore mining
 Beryllium alloy - production
 Beryllium alloy - stamping/drawing
 Beryllium metal fabrication
 Bisphenol A production
 Blending of leaded gasoline
 Boiler - cofiring oil and waste oil with PCBs
 Boilers cofiring wastes - industrial
 Bread baking
 Brick manufacture
 Bulk polyvinyl chloride polymerization
 Butadiene production - recovery process
 By-product HCl manufacturing
 CCl₄ and perchloroethylene production - propane chlorination
 CCl₄ production - CS₂ chlorination
 CCl₄ production - hydrocarbon chlorinolysis
 CCl₄ production - methane chlorination
 CCl₄ production - methanol/methyl chloride chlorination
 CCl₄ production - methanol/methyl chloride process
 Cadmium pigments manufacture
 Caprolactam production
 Carbon black manufacture
 Carbon black manufacture - oil furnace
 Cast iron production
 Catalyst manufacture
 Cement kilns cofiring waste
 Cement manufacture
 Cement manufacture - dry process
 Cement manufacture - wet process
 Ceramics
 Chain saw exhausts
 Charcoal manufacture
 Chemical applications
 Chemical distribution facilities
 Chlor-alkali plant
 Chlorine production
 Chlorine production - mercury cell process (chloralkali)
 Chlorobenzene production
 Chloroform production (any method)
 Chloroform production - methane chlorination
 Chloroform production - methanol/CH₃Cl chlorination
 Chloromethane production - methane chlorination
 Chloromethane production - methanol/CH₃Cl chlorination
 Chrome plating
 Chromic acid production
 Chromite ore refining

TABLE 2-2. Continued

Coal and refuse-derived fuel combustion
 Coal combustion
 Coal combustion, commercial
 Coal combustion, industrial
 Coal combustion, residential
 Coal combustion, utility
 Coal refuse pile burning
 Coffee bean roasting
 Coke by-product plants
 Coke by-product recovery
 Coke manufacture
 Coke oven ammonium sulfate production
 Coke oven gas boiler
 Coking
 Commercial solid waste incineration
 Controlled/prescribed burning
 Copper ore milling/processing
 Copper smelting
 Copper sulfate production
 Cotton field spraying with arsenic acid
 Cotton ginning
 Cresol (p-) production
 Crude terephthalic acid production
 Crude terephthalic acid production by air oxidation process
 Cumene production
 Cyclohexane production by benzene hydrogenation process
 Decorative chrome electroplating
 Defoliating/dessicating cotton
 Degreasing operations using MC
 Degreasing operations using PCE
 Degreasing operations using TCE
 Degreasing operations using methyl chloroform
 Degreasing operations using trichlorotrifluorethane
 Demolition and renovation of buildings
 Dichloroaniline production
 Dichloroaniline(3,4) production
 Dichloroaniline(1,2) production
 Dichloroaniline(1,4) production
 Die-casting production using zinc-based alloys
 Dimethyl terephthalate production
 Dimethyl terephthalate production by methanol esterification
 Dinitrobenzene production
 Dispersion polyvinyl chloride production
 Dodecylphenol production
 Drinking water chlorination
 Drum and barrel furnace
 Dry cell battery manufacturing
 Dry chlorinated paraffin production
 Dry cleaning, perchloroethylene
 Dry cleaning, trichlorotrifluoroethane
 Dye synthesis
 Electric arc furnace; chrome ore/lime melt

TABLE 2-2. Continued

Electric arc furnace; ferrochrome-silicon
 Electric arc furnace; ferrosilicon
 Electric arc furnace; high-carbon ferrochrome
 Electric arc furnace; high-carbon ferrochrome and charge Cr
 Electric utility industry
 Electricity generation
 Electro-deposition
 Electroplating
 Elemental phosphorous production
 Emissions from a typical service station
 Energy production
 Epichlorohydrin production
 Epichlorohydrin production by hydrochlorination
 Epichlorohydrin use as a feedstock in batch process
 Ethyl chloride production by hydrochlorination
 Ethyl chloride production by hydrochlorination of ethanol
 Ethyl chloride production by hydrochlorination of ethylene
 Ethylbenzene production
 Ethylbenzene/styrene production
 Ethylene amine production
 Ethylene dichloride production
 Ethylene dichloride production - balanced process
 Ethylene dichloride production - direct chlorination
 Ethylene dichloride production - oxyhydrochlor. of ethylene
 Ethylene dichloride production - oxyhydrochlorination
 Ethylene dichloride/vinyl chloride production
 Ethylene oxide production by air-oxidation process
 Ethylene oxide production by oxygen-oxidation process
 Ferroalloy production
 Ferrochrome plant
 Ferrochrome plant: ferrochrome-silicon product
 Ferrochrome plant: high-carbon ferrochrome
 Ferromanganese production by electric arc furnace process
 Ferrovandium production
 Fertilizer application
 Fertilizer mixing
 Fish processing plants
 Fluorocarbon 11/12 production
 Fluorocarbon 22 production
 Foodstuff fumigation
 Foodstuff fumigation with recycling water-sealed pump
 Formaldehyde production, metal oxide catalyst process
 Formaldehyde production, silver catalyst process
 Fresh water utility cooling towers
 Frit smelting
 Fungicides application
 Gasoline blending at refineries
 Gasoline loading at bulk plants
 Gasoline loading at bulk terminals and bulk plants
 Gasoline loading in marine vessels
 Gasoline loading of tank car/truck with leaded gasoline
 Gasoline loading of tank trucks at bulk plants

TABLE 2-2. Continued

Gasoline loading of tank trucks at bulk terminals
 Gasoline marketing activities
 Gasoline storage at bulk plants
 Gasoline storage at bulk terminals
 Gasoline storage at typical service station
 Gasoline use
 General laboratory use
 Glass fiber manufacture
 Glass manufacturing
 Glycerin production - chlorination process
 Glycol ether production - methanol process
 Granular triple superphosphate
 Gray iron foundry operations
 Hard chrome plating
 Hazardous waste incineration
 Herbicide production
 Hexachlorocyclopentadiene production
 Hexamethylene-tetramine production
 Hospital sterilization
 Hospital sterilizer, table-top
 Hospital waste incineration
 Hot mix asphalt production
 Hydrochloric acid manufacture
 Hydrochloric acid-mannheim process
 Hydrochloric acid-synthesis process
 Hydrofluoric acid manufacture
 HypalonK production
 Industrial carbon regeneration
 Industrial waste incinerators
 Instrument manufacture
 Iron and steel foundry
 Iron and steel production
 Iron foundries
 Iron ore processing
 Iron ore production
 Isophthalic acid production
 Isopropyl alcohol production
 Jet engine exhaust
 Kraft mill paper process
 Kraft paper recovery boilers
 Kraft pulp
 Kraft pulp - sulfite pulping
 Landfill
 Landfill of HCB waste
 Lead smelting
 Lime kilns cofiring wastes
 Linear alkylbenzene chlorination process
 Linear alkylbenzene olefin process
 Log-treating
 Log-treating (pressure treating)
 Maleic anhydride production
 Manganese chemical manufacturing

TABLE 2-2. Continued

Manganese-bearing ferroalloy prod/electric arc furnace prod.
 Manufacture of acetone and phenol from cumene
 Manufacture of electrical apparatus
 Manufacture of pentachlorophenol
 Manufacture of pesticide intermediates - Dicamba
 Manufacture of pesticide intermediates - Stirofos
 Manufacture of printed circuit boards
 Melamine-formaldehyde resin production
 Metallurgical coke production
 Methane chlorination
 Methyl chloride chlorination
 Methyl chloroform production
 Methyl chloroform production by hydrochlorination
 Methyl chloroform production from ethane
 Methyl chloroform production from vinyl chloride
 Methylene chloride production
 Methylene chloride production - methane chlorination
 Methylene chloride production - methyl chloride chlorination
 Methylene di-para-phenylene isocyanate (MDI) production
 Methylthiohydroxybutanoic acid production
 Mining
 Mining and processing of vanadium
 Mixed xylene production, catalytic reformat
 Mixed xylene production, coal-derived
 Mixed xylene production, pyrolysis gasoline
 Mixed xylene production, toluene disproportionation
 Mobile internal combustion sources
 Mono- and dichlorobenzene production; direct chlorination
 Municipal waste combustion
 Municipal wastewater treatment
 Naphthalene production
 Natural gas combustion
 Neoprene manufacture
 Nickel-cadmium battery manufacture
 Nitrobenzene production
 Nitrobenzene and aniline production
 Nitrobenzene use as a chemical intermediate
 Nonferrous alloy production
 Nonferrous metals production
 Nonylphenol production
 Normal superphosphate production
 Oil and coal combustion
 Oil combustion
 Oil combustion, commercial
 Oil combustion, industrial
 Oil combustion, residential
 Oil combustion, utility
 Oil shale retorting
 Open burning
 Organics removal from wastewater - activated carbon
 Oxybisphenoxarsine and 1,3-diisocyanate production
 Oxybisphenoxarsine production

TABLE 2-2. Continued

PCP-treated wood combustion
 Paint and coating manufacture
 Paint stripper formulation
 Paint stripping
 Paper coating
 Paved roads
 Pentaerythritol production
 Perchloroethylene and carbon tetrachloride production
 Perchloroethylene and trichloroethylene production
 Perchloroethylene production
 Perchloroethylene production - EDC chlorination
 Perchloroethylene production by chlorination process
 Pesticide manufacturing
 Petroleum refinery
 Petroleum refinery sludge
 Petroleum refinery with cracking/reforming
 Petroleum refinery without cracking/reforming
 Pharmaceutical manufacture
 Phenol production
 Phenol production using cumene process
 Phenol-formaldehyde resin production
 Phenolic resin production
 Phosgene production
 Phosgene production by chlorination of CO
 Phosgene/diisocyanate production
 Phosphate fertilizer manufacturing - wet proc.
 Phosphate rock processing
 Phosphoric acid production - wet process
 Photographic film processing
 Phthalic anhydride production
 Phthalic anhydride production - naphthalene process
 Phthalic anhydride production - xylene process
 Plastic stabilizers manufacture
 Polyacetal resin production
 Polybutadiene production
 Polycarbonate production
 Polyether polyol production
 Polymerization of vinylidene chloride
 Polystyrene - batch process
 Polystyrene - continuous process
 Polysulfide rubber production
 Polyvinyl chloride production
 Pressed/blown glass manufacturing
 Primary aluminum production
 Primary aluminum smelting
 Primary and secondary zinc oxide production
 Primary cadmium smelting
 Primary copper smelting
 Primary lead smelting
 Primary ore processing
 Primary slab zinc production
 Primary smelting of nickel ore

TABLE 2-2. Continued

Primary zinc oxide production
 Primary zinc production
 Primary zinc smelting
 Primary zinc/zinc oxide smelting
 Production of epoxy resins (continuous process)
 Production of ethylene from naphtha/gas oil
 Production of flexible slabstock polyurethane foam
 Production of phosgene
 Production of polyurethane foam
 Production of polyvinyl chloride (PVC)
 Propylene glycol production
 Propylene oxide production
 Propylene oxide production by chlorohydrination
 Propylene oxide production; peroxidation process
 Pulp and paper bleaching
 Pulp/paper mill - integrated
 Purified terephthalic acid production
 Rail tank car cleaning
 Refractory production
 Refractory production: chrome-magnesite brick
 Refractory production: chromic oxide brick
 Rotary spin wool glass fiber production
 Salicyclic acid production (aspirin)
 Secondary copper smelting
 Secondary fiber mills
 Secondary iron and steel production
 Secondary lead smelting
 Secondary mercury production
 Secondary processing of nickel-bearing scrap
 Secondary zinc production
 Secondary zinc smelting
 Service stations
 Sewage sludge incineration
 Silicomanganese production by electric arc furnace process
 Solid urea production
 Solvent based paints
 Solvent polyvinyl chloride polymerization
 Solvent recycling facility
 Stationary internal combustion engines
 Steel foundries
 Steel mill
 Steel pickling
 Steel production
 Sterilization
 Storage and handling
 Storage losses at a typical gasoline bulk terminal
 Styrene-butadiene copolymers - emulsion crumb
 Styrene-butadiene copolymers - emulsion latex
 Styrene-butadiene rubber produc. by emulsion polymerization
 Styrene-butadiene rubber produc. by solution polymerization
 Styrene-butadiene rubber production
 Sulfuric acid production - contact process

TABLE 2-2. Continued

Superphosphate fertilizer application
Suspension polyvinyl chloride production
Symmetrical tetrachloropyridine production
Synthetic fibers - viscose rayon
Synthetic manganese manufacture
Tank truck cleaning
Terephthalic acid production
Tetraethyl lead production
Thinning solvent
Toluene diisocyanate production
Toluene production
Toluene production via catalytic reformat
Transport in tank trucks
Trichloroethylene production
Trichloroethylene production by oxyhydrochlorination process
Trimethylolpropane production
Triple superphosphate production - run of pile
Unsaturated polyester resin
Uranium mining
Urea manufacturing
Urea-formaldehyde resin production
Use as a chemical intermediate
Use as a solvent
Use as a solvent in paints
Use as a thinning solvent
Use as paint and varnish remover
Use in plastics processing
Use of aerosol products
Use of automotive products
Use of dental preparations
Use of dielectric fluid in electrical apparatus
Vehicle refueling
Vehicle tire wear
Vinyl chloride monomer production
Vinyl toluene production
Vinyl/asbestos tile manufacturing
Vinylidene chloride copolymer fabric. (cellophane coating)
Vinylidene chloride copolymer fabric. (for extrusion)
Vinylidene chloride copolymer fabric. (for latex coating)
Vinylidene chloride production
Waste incineration
Waste oil combustion
Wastewater treatment
Wine making
Wire reclamation incineration
Wood combustion
Wood combustion, industrial
Wood combustion, residential
Wood preserving
Woven fabric finishing
Xylene disproportionation production
Xylene isomer production: m-xylene

TABLE 2-2. Continued

Xylene isomer production: o-xylene
Xylene isomer production: p-xylene
Zinc smelting

SECTION 3. EMISSION FACTORS FOR TOXIC AIR POLLUTANTS*

* Units of emission factors associated with SCC's may not correspond to standard SCC units used in the NEDS.

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Acetaldehyde	75070		Wood combustion, residential	Fireplace		0.105 g/kg wood burned	Burning Jack Pine	130
Acetaldehyde	75070		Wood combustion, residential	Fireplace		0.200 g/kg wood burned	Burning cedar	130
Acetaldehyde	75070		Wood combustion, residential	Fireplace		0.08 g/kg wood burned	Burning red oak	130
Acetaldehyde	75070		Wood combustion, residential	Fireplace		0.086 g/kg wood burned	Burning green pine	130
Acetaldehyde	75070		Wood combustion, residential	Non-vented stove		0.1 - 0.2 g/kg wood burned	Burning green oak or green pine	130
Acetaldehyde	75070		Wood combustion, residential	Woodstove		0.11 g/kg wood	Uncontrolled, average emission factor based on source tests	58
Acetaldehyde	75070		Wood combustion, residential	Fireplace		0.70 g/kg wood	Uncontrolled, average emission factor based on source tests	58
Acetaldehyde	75070		Wood combustion, residential	Small airtight woodstoves, birch wood		16.4 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Acetaldehyde	75070		Wood combustion, residential	Small airtight woodstoves, birch wood		992 mg/kg dry fuel burned	Starved air conditions, based on emission tests	57
Acetaldehyde	75070		Wood combustion, residential	Small airtight woodstoves, spruce wood		17.2 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Acetaldehyde	75070		Wood combustion, residential	Small airtight woodstoves, spruce wood		315 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Acetaldehyde	75070		Wood combustion, residential	Woodstove		0.24 lb/ton burned	Uncontrolled	94
Acetaldehyde	75070		Wood combustion, residential	Fireplace		1.4 lb/ton burned	Uncontrolled	94
Acetaldehyde	75070		Open burning	Area source	50300201	0.36 - 0.73 g/kg wood burned	Estimated from a total aldehyde value of 5.2 g/kg	130
Acetaldehyde	75070	2095	Coffee bean roasting	Continuous bean roaster	30200201	2.3 x 10E-5 kg/kg beans roasted	Uncontrolled, average of 3 tests	130
Acetaldehyde	75070	2095	Coffee bean roasting	Continuous bean roaster	30200201	8.2 x 10E-6 kg/kg beans roasted	Controlled with afterburner, average of 2 tests	130
Acetaldehyde	75070	2845	Acetone/phenol manufacture from cumene	Cumene peroxidation vent	30102002	0.0021 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Acetaldehyde	75070	2849	Acetaldehyde production	Off-air vent	30112013	4.3 lb/1000 lb acetaldehyde	Controlled, high pressure scrubber, data from one plant	143

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Acetaldehyde	75070	2869	Acrylic acid production - propylene oxidation	Quench absorber off-gas	30113222	0.1 kg/Mg acrylic acid produced	Based on data from one plant	151
Acetaldehyde	75070	4953	Municipal waste combustion	Modular burn unit stack	50100101	2.2 x 10E-10 g/kg waste burned	From test results, no data on controls	130
Acetaldehyde	75070	4953	Municipal waste combustion	Mass burn unit stack	50100102	4.3 x 10E-9 g/kg waste burned	From test results, no data on controls	130
Acetaldehyde	75070	4953	Municipal waste combustion	Refuse derived fuel unit stack	50100121	1.5 x 10-9 g/kg waste burned	From test results, no data on controls	130
Acetic acid	64197	2861	Charcoal manufacture	Overall process	30100601	109 g/kg charcoal	Uncontrolled, range of 102-116, engineering judgment	124
Acetic acid	64197	2861	Charcoal manufacture	Batch kiln	30100603	16 g/kg charcoal	Controlled, afterburner, engineering judgment	124
Acetic acid	64197	2861	Charcoal manufacture	Continuous furnace	30100604	5.5 g/kg charcoal	Controlled, afterburner, engineering judgment	124
Acetic acid	64197	2869	Crude terephthalic acid production	Reactor vent	30103102	0.6 g/kg crude IPA produced	Uncontrolled	62
Acetic acid	64197	2869	Acrylic acid production - propylene oxidation	Quench absorber off-gas	30113222	1.4 kg/Mg acrylic acid produced	Based on data from one plant	151
Acetone	67641	264	Paper coating	Coating line	40201301	2.05 x 10-4 lb/ft paper coated	Based on one sampling program, sampled at discharge of afterburner	11
Acetone	67641	2865	Acetone/phenol manufacture from cumene	Cumene peroxidation vent	30102802	0.60 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Acetone	67641	2865	Acetone/phenol manufacture from cumene	Cleavage section vents (combined)	30120211	6 x 10E-6 g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Acetone	67641	2865	Acetone/phenol manufacture from cumene	Storage tank vents	407084	0.06 g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Acetone	67641	2869	Acrylic acid production - propylene oxidation	Quench absorber off-gas	30113222	1.3 kg/Mg acrylic acid produced	Based on data from one plant	151
Acetone	67641	2869	Glycerin production - chlorination process	Lights stripper vent - allyl alcohol step	30117615	2750 g/Mg glycerin produced	Uncontrolled, assumed 25% VOC is acetone, test data and calculations	150

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Acetone	67641	7699	Tank truck cleaning	Entire process	490004	0.686 lb/truck	Emission measurement	97
Acetonitrile	75058	2869	Acrylonitrile production - SOHIO process	Absorber vent	30125406	2.0 g/kg acrylonitrile produced	Uncontrolled, based on data from plants and EPA studies	149
Acetonitrile	75058	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	10.71 mg/kg dry sludge	One test, scrubber	101
Acetonitrile	75058	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	0.79 mg/kg dry sludge	One test, scrubber and afterburner, better operating conditions	101
Acetophenone	98862	2865	Acetone/phenol manufacture from cumene	Cumene peroxidation vent	30102002	0.0086 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Acetophenone	98862	2865	Acetone/phenol manufacture from cumene	Cleavage section vents (combined)	30120211	4.4 x 10E-6 g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Acetylene	74862	2895	Carbon black manufacture - oil furnace	Main process vent	30100504	90 lb/ton carbon black produced	Range of 10-120 lb/ton based on survey of operating plants	97
Acrolein	107028		Wood combustion, residential	Fireplace/woodstove		0.04 g/kg wood burned		140
Acrolein	107028	2095	Coffee bean roasting	Continuous roasting	30200201	3.8 x 10E-5 kg/kg beans roasted	Uncontrolled	140
Acrolein	107028	2095	Coffee bean roasting	Continuous roasting	30200201	1.6 x 10E-5 kg/kg beans roasted	Afterburner	140
Acrolein	107028	2869	Methylthiohydroxybutanoic acid production	Acrolein vent collection header		<0.02 kg/Mg MIBA produced	Incinerator with scrubber	140
Acrolein	107028	2869	Acrolein production	Acrolein process scrubber overheads	301120	0.02 kg/Mg acrolein produced	Incinerator, based on 3.8 x 10E7 kg/yr capacity plant	140
Acrolein	107028	2869	Acrolein production	Process fugitives	30112037	0.95 kg/Mg acrolein produced	Leak detection and repair, based on 3.8 x 10E7 kg/yr capacity plant	140
Acrolein	107028	2869	Acrylic acid production - propylene oxidation	Quench absorber off-gas	30113222	4.5 kg/Mg acrylic acid produced	Based on data from one plant	151
Acrolein	107028	2869	Acrylic acid production	Process fugitives	30113227	4 kg/Mg acrylic acid produced	Uncontrolled, plant of 68.1 Mg capacity, see reference for more data	140
Acrolein	107028	4953	Municipal waste combustion	Refuse derived fuel incinerator	50100101	1.6 x 10E-10 g/kg waste	Control not described	140

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Acrolein	107028	4953	Municipal waste combustion	Mass burn unit	50100101	3.4 x 10 ⁻⁹ g/kg waste	Control not described	140
Acrolein	107028	4953	Municipal waste combustion	Modular burn unit	50100101	5.5 x 10 ⁻¹¹ g/kg	Control not described	140
Acrolein	107028	4953	Wastewater treatment	POTW	50100701	0.09 kg/kg of acrolein in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Acrylic acid	79107	2869	Acrylic acid production - propylene oxidation	Quench absorber off-gas	30113222	18.0 kg/kg acrylic acid produced	Based on data from one plant	151
Acrylonitrile	107131	2869	Acrylonitrile production	Absorber vent	30125406	0.10 g/kg acrylonitrile produced	Uncontrolled	162
Acrylonitrile	107131	2869	Acrylonitrile production	Absorber vent	30125406	0.002 g/kg acrylonitrile produced	Thermal incinerator	162
Acrylonitrile	107131	2869	Acrylonitrile production - S0410 process	Absorber vent	30125406	0.1 g/kg acrylonitrile produced	Uncontrolled, based on data from plants and EPA studies	149
Acrylonitrile	107131	2869	Acrylonitrile production	Absorber vent (start up)	30125407	0.187 g/kg acrylonitrile produced	No control, emissions vented to avoid explosion, factor is average for 1 year	162
Acrylonitrile	107131	2869	Acrylonitrile production	Column vents	30125408	5 g/kg acrylonitrile produced	Uncontrolled	162
Acrylonitrile	107131	2869	Acrylonitrile production	Column vents	30125408	0.10 g/kg acrylonitrile produced	Flare	162
Acrylonitrile	107131	2869	Acrylonitrile production	Crude acrylonitrile storage vents	30125409	0.048 g/kg acrylonitrile produced	Uncontrolled, assumed fixed roof	162
Acrylonitrile	107131	2869	Acrylonitrile production	Acrylonitrile run tank vents	30125409	0.128 g/kg acrylonitrile produced	Uncontrolled, assumed fixed roof	162
Acrylonitrile	107131	2869	Acrylonitrile production	Acrylonitrile storage vents	30125409	0.531 g/kg acrylonitrile produced	Uncontrolled, assumed fixed roof	162
Acrylonitrile	107131	2869	Acrylonitrile production	Crude acrylonitrile storage vents	30125409	0.00048 g/kg acrylonitrile produced	Water scrubber	162
Acrylonitrile	107131	2869	Acrylonitrile production	Acrylonitrile run tank vents	30125409	0.00128 g/kg acrylonitrile produced	Water scrubber	162
Acrylonitrile	107131	2869	Acrylonitrile production	Acrylonitrile storage vents	30125409	0.00531 g/kg acrylonitrile produced	Water scrubber	162

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Acrylonitrile	107131	2869	Acrylonitrile production	Tank car loading	30125409	0.167 g/kg acrylonitrile produced	Uncontrolled	162
Acrylonitrile	107131	2869	Acrylonitrile production	Tank car loading	30125409	0.0017 g/kg acrylonitrile produced	Water scrubber	162
Acrylonitrile	107131	2869	Acrylonitrile production	Barge loading	30125409	0.150 g/kg acrylonitrile produced	Uncontrolled	162
Acrylonitrile	107131	2869	Acrylonitrile production	Barge loading	30125409	0.0015 g/kg acrylonitrile produced	Water scrubber	162
Acrylonitrile	107131	2869	Acrylonitrile production	Fugitive	30125409	0.806 g/kg acrylonitrile produced	Uncontrolled	162
Acrylonitrile	107131	2869	Acrylonitrile production	Fugitive	30125409	0.238 g/kg acrylonitrile produced	Leak detection and repair	162
Acrylonitrile	107131	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	16.3 mg/kg dry sludge	Average of four tests, scrubber	101
Acrylonitrile	107131	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<0.03 mg/kg dry sludge	One test, scrubber	101
Acrylonitrile	107131	4953	Wastewater treatment	POTW	50100701	0.12 Mg/Mg acrylonitrile in influent	Based on emis. modeling for hypoph. POTW, represents average POTW that treats industrial wastewater	60
Acrylonitrile	107131	4953	Petroleum refinery sludge	Land treatment	50300820	0.086 kg/hectare-hr	Based on two different sampling methods at the same site	12
Adipic acid	124049	2869	Adipic acid production	Adipic acid refining	30100105	0.1 lb/ton produced	Uncontrolled	97
Adipic acid	124049	2869	Adipic acid production	Adipic acid drying, cooling, storage	30100106	0.8 lb/ton produced	Baghouse	97
Aldrin	309902	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	<23 ug/kg dry sludge	One test, scrubber	101
Aldrin	309902	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<38 ug/kg dry sludge	One test, scrubber	101
Allyl chloride	10751	2869	Epichlorohydrin production by hydrochlorination	Absorption	30130501	2.0 g/kg produced	Control unclear, based on mass balance and testing	95
Allyl chloride	10751	2869	Epichlorohydrin production by hydrochlorination	Separation	30130501	2.0 g/kg produced	Control unclear, based on mass balance and testing	95
Aluminum	7429905		Wood combustion, residential	Woodstove without baffle		1.5 g/Mg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Aluminum	7429905	226	Woven fabric finishing	Tenter frames - resin finishing	330001	1.3 mg/kg fabric	Uncontrolled, average of four tests	52
Aluminum	7429905	226	Woven fabric finishing	Thermosol drying	330001	0.11 mg/kg fabric	Uncontrolled, average of three tests	52
Aluminum	7429905	226	Woven fabric finishing	Heat setting	330001	0.02 mg/kg fabric	Uncontrolled, based on test data	52
Aluminum	7429905	226	Woven fabric finishing	Curling oven - resin finish	330001	0.018 mg/kg fabric	Uncontrolled, one test	52
Aluminum	7429905	4953	Municipal waste combustion	Incinerator stack	501001	0.07 kg/Mg manic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, based on material balance for model incinerator	98
Ammonia	7664417	0211	Beef cattle feed lots	Entire source	30102001	11 lb/day/1000 head capacity	Engineering judgement	97
Ammonia	7664417	1211	Coal refuse pile burning	Refuse pile		4.3 x 10 ⁻⁵ kg/hr/Mg burning coal refuse		136
Ammonia	7664417	2873	Anhydrous ammonia production	Carbon dioxide regenerator	30100308	1 kg/Mg NH ₃ produced	Uncontrolled	97
Ammonia	7664417	2873	Anhydrous ammonia production	Condensate steam stripper	30100309	1.1 kg/Mg NH ₃ produced	Uncontrolled	97
Ammonia	7664417	2873	Ammonium nitrate production	Neutralizer	30102704	0.43 - 18.0 kg/Mg NH ₄ NO ₃ produced	Uncontrolled, presented as range because of data variations	97
Ammonia	7664417	2873	Ammonium nitrate production	Solids formation - rotary drum granulators	30102707	29.7 kg/Mg NH ₄ NO ₃ produced	Uncontrolled	97
Ammonia	7664417	2873	Ammonium nitrate production	Solids formation - pan granulators	30102708	0.07 kg/Mg NH ₄ NO ₃ produced	Uncontrolled	97
Ammonia	7664417	2873	Ammonium nitrate production	Solids formations - high density prill towers	30102712	28.6 kg/Mg NH ₄ NO ₃ produced	Uncontrolled	97
Ammonia	7664417	2873	Ammonium nitrate production	High density prill coolers	30102714	0.02 kg/Mg NH ₄ NO ₃ produced	Uncontrolled, represents coolers and pre-coolers	97
Ammonia	7664417	2873	Ammonium nitrate production	Evaporation/condensation operations	30102717	0.27 - 16.7 kg/Mg NH ₄ NO ₃ produced	Uncontrolled, presented as range because of data variations	97
Ammonia	7664417	2873	Ammonium nitrate production	Solids formation - low density prill towers	30102722	0.13 kg/Mg NH ₄ NO ₃ produced	Uncontrolled	97
Ammonia	7664417	2873	Ammonium nitrate production	Low density prill coolers	30102724	0.15 kg/Mg NH ₄ NO ₃ produced	Uncontrolled, represents coolers and pre-coolers	97

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Amonia	7664417	2873	Amonium nitrate production	Low density prill dryers	30102725	0 - 1.59 kg/Mg NH ₄ NO ₃ produced	Uncontrolled, presented as range due to data variations, represents dryer and pre-dryer	97
Amonia	7664417	2873	Amonium nitrate production	Rotary drum granulator coolers	30102729	0.59 kg/Mg NH ₄ NO ₃ produced	Uncontrolled, represents cooler and pre-cooler	97
Amonia	7664417	2873	Amonium nitrate production	Pen granulator coolers	30102730	0 kg/Mg NH ₄ NO ₃ produced	Represents cooler and pre-cooler	97
Amonia	7664417	2873	Urea manufacturing	Evaporator	3010400	1.73 g/kg urea produced	Controlled by wet scrubber, test data for one plant	137
Amonia	7664417	2873	Urea manufacturing	Prill tower	30104003	0.40 g/kg urea produced	Uncontrolled, data from three plants	137
Amonia	7664417	2873	Urea manufacturing	Granulation	30104004	0.25 g/kg urea produced	Controlled by scrubber, test data	137
Amonia	7664417	2874	Amonium phosphate production	Total plant emissions	301030	0.07 kg/Mg phosphate produced	Controlled (not specified)	97
Amonia	7664417	2911	Petroleum refinery	Reciprocating compressor engines	306	3.2 kg/1000 m ³ gas burned		97
Amonia	7664417	2911	Petroleum refinery	Fluidized catalytic cracking unit	30600201	0.155 kg/m ³ fresh feed	Uncontrolled	97
Amonia	7664417	2911	Petroleum refinery	Fluidized catalytic cracking unit	30600201	Negligible	Controlled by electrostatic precipitator and CO boiler	97
Amonia	7664417	3312	Coke manufacture	Wet coal charging larry car	30300302	0.02 lb/ton coal charged	Uncontrolled	97
Amonia	7664417	3312	Coke manufacture	Coke pushing	30300303	0.1 lb/ton coal charged	Uncontrolled	97
Amonia	7664417	3312	Coke manufacture	Door leaks	30300308	0.06 lb/ton coal charged	Uncontrolled	97
Amonium sulfate	7783202	28	Amonium sulfate production	Dryer	301	0.16 kg/Mg ammonium sulfate produced	Wet scrubber, based on test data from all types of AS dryers	129
Amonium sulfate	7783202	2869	Amonium sulfate production - caprolactam by-product	Dry rotary	30121009	26 kg/Mg ammonium sulfate produced	Uncontrolled, range of 0.4-77 kg/Mg, based on test data	129
Amonium sulfate	7783202	2869	Amonium sulfate production - caprolactam by-product	Fluidized-bed dryer	30121009	110 kg/Mg ammonium sulfate produced	Uncontrolled, based on source test	129
Amonium sulfate	7783202	2873	Amonium sulfate production - synthetic process	Rotary dryer	30113004	26 kg/Mg ammonium sulfate produced	Uncontrolled, range of 0.4-77 kg/Mg, based on test data	129
Amonium sulfate	7783202	3312	Coke oven ammonium sulfate production	Rotary dryer	303003	10 kg/Mg ammonium sulfate produced	Uncontrolled	129

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Aniline	62533	4953	Wastewater treatment	POTW	50100701	0.006 kg/kg of aniline in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Anthracene	120127	2491	Log-treating	Creosote cool-down	307005	0.0012 lbs/hr	Based on one sampling program at one facility	10
Anthracene	120127	2491	Log-treating	Creosote conditioning	30700501	0.0009 lbs/hr	Based on one sampling program at one facility	10
Anthracene	120127	2491	Log-treating	Pentachlorophenol conditioning	30700597	0.0011 lbs/hr	Based on one sampling program at one facility	10
Anthracene	120127	2491	Log-treating	Pentachlorophenol cool-down	30700597	0.0009 lbs/hr	Based on one sampling program at one facility	10
Anthracene	120127	2491	Log-treating	Pentachlorophenol treating - fugitive	30700597	0.012 lbs/hr	Based on one sampling program at one facility	10
Anthraquinone	84651	226	Woven fabric finishing	Thermosol dyeing	330001	9.6 mg/kg fabric	Uncontrolled, average of two tests	52
Anthraquinone	84651	226	Woven fabric finishing	Tenter frames - resin finish	330001	3.1 mg/kg fabric	Uncontrolled, average of two tests	52
Anthraquinone	84651	226	Woven fabric finishing	Curing ovens - resin finish	330001	6.5 mg/kg fabric	Uncontrolled, average of two tests	52
Antimony	7440360		Wood combustion, residential	Woodstove without baffle		0.023 g/kg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Antimony	7440360	226	Woven fabric finishing	Tenter frames - resin finishing	330001	0.63 mg/kg fabric	Uncontrolled, average of two tests	52
Antimony	7440360	226	Woven fabric finishing	Thermosol dyeing	330001	0.062 mg/kg fabric	Uncontrolled, average of two tests	52
Antimony	7440360	226	Woven fabric finishing	Heat setting	330001	0.057 mg/kg fabric	Uncontrolled, based on test data	52
Antimony	7440360	226	Woven fabric finishing	Curing oven - resin finish	330001	0.088 mg/kg fabric	Uncontrolled, one test	52
Arsenic	7440382		Coal combustion, residential	Bituminous coal-fired boilers		1160 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgment	36
Arsenic	7440382		Coal combustion, residential	Subbituminous coal-fired boilers		484 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgment	36
Arsenic	7440382		Coal combustion, residential	Anthracite coal-fired boilers		453 lb/10E12 Btu	Uncontrolled, highly variable,	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Arsenic	7440382		Coal combustion, residential	Lignite coal-fired boilers		2380 lb/10E12 Btu	calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion, residential	Boilers fired by coal from northern plains region		525 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion, residential	Boilers fired by coal from rocky mountain region		392 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion, residential	Boilers fired by coal from appalachian region		1640 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion, residential	Boilers fired by coal from interior region		1120 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Arsenic	7440382		Cotton field spraying with arsenic acid	Ground application		6.1 g As acid/kg As applied	Range 0.9 to 16.2 g arsenic acid/kg As acid applied	7
Arsenic	7440382		Cotton field spraying with arsenic acid	Airplane application		48.8 g As acid/kg As applied	Estimated from literature data	7
Arsenic	7440382		Wood combustion, residential	Woodstove without baffle		0.13 g/Mg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Arsenic	7440382		Oil combustion	Residual oil-fired boilers, util./commerc./industr./residential	1	19 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Arsenic	7440382		Oil combustion	Distillate oil-fired boilers, util./commerc./industr./residential	1	6.2 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Arsenic	7440382		Oil combustion	Distillate oil-fired boilers, util./commerc./industr./residential	1	2.06 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Arsenic	7440382		Oil combustion	Distillate oil-fired boilers, util./commerc./industr./residential	1	0.50 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Arsenic	7440382		Oil combustion	Distillate oil-fired boilers, util./commerc./industr./residential	1	0.42 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Arsenic	7440382		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	9.31 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Arsenic	7440382		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	2.28 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Arsenic	7440382		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	1.90 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	684 lb/10E12 Btu	Uncontrolled, based on emission test data	36
Arsenic	7440382		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	335 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	40.1 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Arsenic	7440382		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	17.2 lb/10E12 Btu	Controlled with scrubber, based on source tests	36
Arsenic	7440382		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	1340 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	658 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	168 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Arsenic	7440382		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	76.7 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Bituminous coal-fired cyclone boilers, util/commerc/industr	1	115-310 lb/10E12 Btu	Uncontrolled, based on measured and calculated emission factors	36
Arsenic	7440382		Coal combustion	Bituminous coal-fired cyclone boilers, util/commerc/industr	1	56-152 lb/10E12 Btu	Multiclone, calculated based on	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Arsenic	7440382		Coal combustion	boilers, util/commerc/industr	1		engineering judgement	
Arsenic	7440382		Coal combustion	Bituminous coal-fired cyclone boilers, util/commerc/industr	1	14.4 lb/10E12 Btu	ESP, based on source tests	36
Arsenic	7440382		Coal combustion	Bituminous coal-fired spreader stoker, util/commerc/industr	1	264-542 lb/10E12 Btu	Uncontrolled, based on source tests	36
Arsenic	7440382		Coal combustion	Bituminous coal-fired spreader stoker, util/commerc/industr	1	129-265 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Bituminous coal-fired spreader stoker, util/commerc/industr	1	33-67 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Bituminous coal-fired overfeed stoker, util/commerc/industr	1	542-1030 lb/10E12 Btu	Uncontrolled, based on source tests	36
Arsenic	7440382		Coal combustion	Bituminous coal-fired overfeed stoker, util/commerc/industr	1	265-505 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Bituminous coal-fired overfeed stoker, util/commerc/industr	1	67-129 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Lignite coal-fired pulverized dry bottom boiler, util/commerc/industr	1	1390 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Lignite coal-fired pulverized dry bottom boiler, util/commerc/industr	1	683 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Lignite coal-fired pulverized dry bottom boiler, util/commerc/industr	1	82 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Lignite coal-fired pulverized dry bottom boiler, util/commerc/industr	1	35 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	2730 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Arsenic	7440382		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util//commerc/industr	1	1340 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util//commerc/industr	1	343 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util//commerc/industr	1	156 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Lignite coal-fired cyclone boilers, util//commerc/industr	1	235-632 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Lignite coal-fired cyclone boilers, util//commerc/industr	1	114-310 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Lignite coal-fired cyclone boilers, util//commerc/industr	1	29 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Lignite coal-fired spreader stoker boilers, util//commerc/industr	1	538-1100 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Lignite coal-fired spreader stoker boilers, util//commerc/industr	1	263-540 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Lignite coal-fired spreader stoker boilers, util//commerc/industr	1	67-137 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Lignite coal-fired overfeed stoker boiler, util//commerc/industr	1	1100-2100 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Lignite coal-fired overfeed stoker boiler, util//commerc/industr	1	540-1030 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Lignite coal-fired overfeed stoker boiler, util//commerc/industr	1	137-263 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Anthracite coal-fired	1	266 lb/10E12 Btu	Uncontrolled, calculated based on	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Arsenic	7440382		Coal combustion	pulverized dry bottom boilers, util/commerc/industr	1	130 lb/10E12 Btu	engineering judgement	
Arsenic	7440382		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	15.6 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	6.7 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	521 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	256 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	65 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	29.8 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	45-121 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	22-59 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	5.6 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Anthracite coal-fired spreader stoker boilers, util/commerc/industr	1	103-210 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Anthracite coal-fired spreader stoker boilers, util/commerc/industr	1	50-103 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Anthracite coal-fired spreader stoker boilers, util/commerc/industr	1		Controlled with multiclone, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Arsenic	7440382		Coal combustion	Anthracite coal-fired spreader stoker boilers, util./commerc./industr	1	13-26 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Anthracite coal-fired overfeed stoker boilers, util./commerc./industr	1	210-401 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Anthracite coal-fired overfeed stoker boilers, util./commerc./industr	1	103-196 lb/10E12 Btu	Controlled with multicyclone, calculated based on engineering judgement	36
Arsenic	7440382		Coal combustion	Anthracite coal-fired overfeed stoker boilers, util./commerc./industr	1	26-50 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Arsenic	7440382		Energy production	Bituminous coal burning-boiler	1	1190 mg/kg of flyash	680-1700 mg/kg of flyash	3
Arsenic	7440382		Waste oil combustion	Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	0.012 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, variable	55
Arsenic	7440382	0724	Cotton ginning	High pressure section	302004	0.64 g total elem. As/bale lint	Rough estimate, controlled with cyclone	32
Arsenic	7440382	0724	Cotton ginning	Unloading fan cyclone	30200401	0.0003 g/kg cotton ginned	For picker harvested cotton, control - cyclone	8
Arsenic	7440382	0724	Cotton ginning	Low pressure section	30200404	0.0044 g total elem. As/bale lint	Rough estimate, controlled with condenser drums or in-line filters	32
Arsenic	7440382	0724	Cotton ginning	Fugitives	30200410	0.64 g total elem. As/bale lint	Rough estimate	32
Arsenic	7440382	0724	Cotton ginning	Entire process	30200410	0.0004-0.017 g/kg cotton ginned	For stripper harvested cotton, control = cyclones & in-line filters	8
Arsenic	7440382	1011	Iron ore production		303	0.1 kg/Mg of crude ore	Reported but unsubstantiated	3
Arsenic	7440382	32	Glass manufacturing	Entire process	305014	0.18 kg inorganic As/Mg glass pulled	Rough estimate, control devices - only compliance with relevant State PM regs. assumed	32
Arsenic	7440382	32	Glass manufacturing	Entire process	305014	0.25 kg total elem. As/Mg glass pulled	For all single, regenerative type furnaces, no control, regardless of type of glass prod.	28

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Arsenic	7440382	3312	Cast iron production		303008	0.007 kg/Mg of metal charged		3
Arsenic	7440382	3331	Primary copper smelting	Copper smelter (primary)	303005	82.5 lb/hr	Range 25-150 lb/hr, emission factor given as mid-range	3
Arsenic	7440382	3331	Primary copper smelting	Furnace and fugitives	303005	0.10 lb/ton Cu produced	Average value, controlled by air curtain secondary hood system, based on one plant only	31
Arsenic	7440382	3331	Primary copper smelting	Slag skimming	303005	0.025 lb/ton slag skimmed	Controlled by air curtain secondary hood system, based on one plant only	31
Arsenic	7440382	3332	Primary lead smelting	Entire process	303010	0.097 kg inorganic As/Mg lead produced	Rough estimate only, range 0.014-0.29 kg As/Mg lead, fabric filter control	32
Arsenic	7440382	3341	Secondary lead smelting	Blast furnace and reverberatory furnace pair	304004	3.2 g/Mg lead produced	Average rate, controlled with fabric filter	30
Arsenic	7440382	3341	Secondary lead smelting	Blast furnace and reverberatory furnace pair	304004	1.4 g/Mg lead produced	Average rate, controlled with fabric filter and wet scrubber	30
Arsenic	7440382	3341	Secondary lead smelting	Blast and reverberatory furnaces	304004	0.036 g/kg lead produced	For small smelter, control with fabric filter	32
Arsenic	7440382	3341	Secondary lead smelting	Fugitives - furnace charging and tapping	304004	0.028 g/kg lead produced	For small smelter, control with fabric filter	32
Arsenic	7440382	3341	Secondary lead smelting	Area emission - material storage and hauling roads	304004	0.06 g/kg lead produced	For small smelter	32
Arsenic	7440382	3341	Secondary lead smelting	Special battery smelting furnace and fugitives	304005	0.31 g/Mg lead produced	Average proc. and fugitive factor, controlled by fabric filter	30
Arsenic	7440382	4953	Municipal waste combustion	Mass burn, water wall facility	501001	335 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Arsenic	7440382	4953	Municipal waste combustion	Mass burn, refractory facility	501001	11.9 mg/kg controlled particulate emis.	Controlled by ESP, based on source test	118
Arsenic	7440382	4953	Municipal waste combustion	Refuse-derived fuel facility	501001	90 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Arsenic	7440382	4953	Municipal waste combustion	Modular facility	501001	353 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Arsenic	7440382	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	0.06 mg/kg dry sludge	Average of two tests, venturi and impingement scrubber	101
Arsenic	7440382	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	1.5 mg/kg dry sludge	Average of ten tests, scrubber	101
Arsenic	7440382	806	Hospital waste incineration	Incinerator	315020	1.8 x 10-4 lb/ton feed	Uncontrolled, test data	9
Asbestos	1332214		Demolition and renovation of buildings	Waste movement to temp. storage and transfer to trucks		1.4 x 10-4 kg/cubic meter waste	Best estimate of uncontrolled emission, range 1.5 x 10-6 to 4.1 x 10-2	100
Asbestos	1332214		Asbestos building waste disposal	Dumping		6 x 10-5 kg/cubic meter waste	Best estimate of uncontrolled emission, range 5 x 10-7 to 2.1 x 10-2	100
Asbestos	1332214		Asbestos building waste disposal	Leveling and compaction at dump site		2.2 x 10-3 kg/cubic meter waste	Best estimate of uncontrolled emission, range 2 x 10-4 to 4.9 x 10-3	100
Asbestos	1332214		Asbestos building waste disposal	Wind erosion during first year at dump site		3.8 x 10-2 kg/cubic meter waste	Best estimate of uncontrolled emission, range 1 x 10-2 to 7.1 x 10-2	100
Asbestos	1332214		Asbestos building waste disposal	Wind erosion after first year at dump site		4.6 x 10-3 kg/cubic meter waste	Best estimate of uncontrolled emission, range 1.5 x 10-3 to 7.1 x 10-3	100
Asbestos	1332214		Asbestos product usage	Brake linings		5 kg/ton asbestos produced	Uncontrolled	33
Asbestos	1332214		Asbestos product usage	Steel fireproofing		5 kg/ton asbestos produced	Controlled	33
Asbestos	1332214		Asbestos product usage	Insulating cement		13 kg/ton asbestos produced	Controlled	33
Asbestos	1332214		Asbestos product usage	Construction industry		13 kg/ton asbestos produced		33
Asbestos	1332214	1499	Asbestos mining	Mining	305031	2 kg/metric ton asbestos produced	Uncontrolled	33
Asbestos	1332214	1499	Asbestos mining	Loading	305031	1 kg/ton asbestos produced	Uncontrolled	33
Asbestos	1332214	1499	Asbestos mining	Reuling	305031	1 kg/ton asbestos produced	Uncontrolled	33
Asbestos	1332214	1499	Asbestos mining	Entire process	305031	3 kg/ton asbestos produced	50% control	33
Asbestos	1332214	1499	Asbestos mining	Unloading	30503107	1 kg/ton asbestos produced	Uncontrolled	33
Asbestos	1332214	1499	Asbestos milling	Entire process	305032	64.05 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range	100

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Asbestos	1332214	1499	Asbestos milling	Entire process	305032	0.746 kg/ton asbestos consumed	40.32-104.8 Calculated average controlled factor, calculated range 0.004-0.31	100
Asbestos	1332214	1499	Asbestos milling	Entire process	305032	50 kg/ton asbestos produced	No control	33
Asbestos	1332214	1499	Asbestos milling	Entire process	305032	40 kg/ton asbestos produced	50% control	33
Asbestos	1332214	1499	Asbestos milling	Entire process	305032	10 kg/ton asbestos produced	80% control	33
Asbestos	1332214	3292	Asbestos paper manufacturing	Entire process		0.039 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 0.0001-0.82	100
Asbestos	1332214	3292	Asbestos paper manufacturing	Entire process		0.00038 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 5.1 x 10 ⁻⁸ to 0.04	100
Asbestos	1332214	3292	Vinyl/asbestos tile manufacturing	Entire process		5.40 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 0.12-136.5	100
Asbestos	1332214	3292	Vinyl/asbestos tile manufacturing	Entire process		0.004 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 1.2 x 10 ⁻⁵ to 0.14	100
Asbestos	1332214	3292	Asbestos friction materials manufacturing	Entire process		442.2 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 2.19-1000	100
Asbestos	1332214	3292	Asbestos friction materials manufacturing	Entire process		2.87 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 0.002-10	100
Asbestos	1332214	3292	Asbestos textiles manufacturing	Entire process		31.85 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 13.35-44.4	100
Asbestos	1332214	3292	Asbestos textiles manufacturing	Entire process		1.77 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 0.013-17.75	100
Asbestos	1332214	3292	Asbestos gaskets and packings manufacturing	Entire process		1.24 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 0.10-8.6	100
Asbestos	1332214	3292	Asbestos gaskets and packings manufacturing	Entire process		0.00041 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 0-0.09	100
Asbestos	1332214	3292	Asbestos coatings and sealants manufacturing	Entire process		4.06 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 6.35 x 10 ⁻⁶ - 1000	100

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Asbestos	1332214	3292	Asbestos coatings and sealants manufacturing	Entire process		0.067 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 0-500	100
Asbestos	1332214	3292	Asbestos-reinforced plastics manufacturing	Entire process		465.4 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 0.48-1000	100
Asbestos	1332214	3292	Asbestos-reinforced plastics manufacturing	Entire process		2.85 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 4.83 x 10 ⁻⁵ - 100	100
Asbestos	1332214	3292	Asbestos insulation materials manufacturing	Entire process		14.3 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 2.38-18.5	100
Asbestos	1332214	3292	Asbestos insulation materials manufacturing	Entire process		0.34 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 0.024-1.85	100
Asbestos	1332214	3292	Asbestos product fabrication	Friction material production		3 kg/ton asbestos produced	Controlled	33
Asbestos	1332214	3292	Asbestos product fabrication	Textiles		20 kg/ton asbestos produced	Uncontrolled	33
Asbestos	1332214	3292	Asbestos product fabrication	Textiles		1 kg/ton asbestos produced	Controlled	33
Asbestos	1332214	3292	Asbestos product fabrication	Asbestos paper		2 kg/ton asbestos produced	Uncontrolled	33
Asbestos	1332214	3292	Asbestos product fabrication	Asbestos paper		0.5 kg/ton asbestos produced	Controlled	33
Asbestos	1332214	3292	Asbestos product fabrication	Sawing asbestos cement sheet		1838 fibers/cc air/g asbestos machined	Average of test results, cut-off wheel saw	22
Asbestos	1332214	3292	Asbestos product fabrication	Sawing asbestos millboard		647 fibers/cc air/g asbestos machined	Average of test results, toothed blade saw	22
Asbestos	1332214	3292	Asbestos product fabrication	Grinding brake shoes		445 fibers/cc air/g asbestos machined	Average of test results	22
Asbestos	1332214	3292	Asbestos product fabrication	Sawing asbestos cement sheet		305 fibers/cc air/g asbestos machined	Average of test results, toothed blade saw	22
Asbestos	1332214	3292	Asbestos product fabrication	Drilling asbestos cement sheet		283 fibers/cc air/g asbestos machined	Average of test results	22
Asbestos	1332214	3292	Asbestos product fabrication	Drilling millboard		105 fibers/cc air/g asbestos machined	Average of test results	22
Asbestos	1332214	3292	Asbestos product fabrication	Floor tile		2 kg/ton asbestos produced	Uncontrolled	33
Asbestos	1332214	3292	Asbestos product fabrication	Floor tile		0.5 kg/ton asbestos produced	Controlled	33

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Asbestos	1332214	3292	Asbestos - cement pipe manufacturing	Entire process	30501120	31.74 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 17.6-46.9	100
Asbestos	1332214	3292	Asbestos - cement pipe manufacturing	Entire process	30501120	0.076 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 0-52	100
Asbestos	1332214	3292	Asbestos - cement sheet manufacturing	Entire process	30501120	127.9 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 49.7-277.6	100
Asbestos	1332214	3292	Asbestos - cement sheet manufacturing	Entire process	30501120	0.366 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 0-27.76	100
Asbestos	1332214	3292	Asbestos product fabrication	Asbestos cement products	30501120	0.5 kg/ton asbestos produced	Controlled	33
Barium	7440393		Wood combustion, residential	Woodstove without baffle		0.2 g/Mg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Barium	7440393		Waste oil combustion	Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	0.364 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, variable	55
Barium	7440393	226	Woven fabric finishing	Tenter frames - resin finishing	330001	0.04 mg/kg fabric	Uncontrolled, average of four tests	52
Barium	7440393	226	Woven fabric finishing	Thermosol dyeing	330001	0.039 mg/kg fabric	Uncontrolled, average of three tests	52
Barium	7440393	226	Woven fabric finishing	Weat setting	330001	0.0036 mg/kg fabric	Uncontrolled, based on test data	52
Barium	7440393	226	Woven fabric finishing	Curing oven - resin finish	330001	0.019 mg/kg fabric	Uncontrolled, average of three tests	52
Barium	7440393	4953	Municipal waste combustion	Incinerator stack	501001	0.003 kg/Mg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, based on material balance for model incinerator	98
Benzene	71432		Mobile internal combustion sources	Light duty gasoline vehicle, exhaust emissions		0.35-1.53% benzene of evaporative HCs	0.35-0.46% fuel-injected vehicles, 1.11-1.53% carbureted light duty gas vehicles, eng. judgement	132
Benzene	71432		Mobile internal combustion sources	Light duty gasoline vehicles, 3-way catalyst, exhaust emissions		5.12% benzene of exhaust HCs	Engineering judgement	132
Benzene	71432		Mobile internal combustion sources	Light duty gasoline vehicles, 3-way and oxidation catalyst, exhaust emiss.		2.78% benzene of exhaust HCs	Engineering judgement	132

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzene	71432		Mobile internal combustion sources	Light duty gasoline vehicles, noncatalyst or oxidation catalyst, exhaust		3.95% benzene of exhaust HCs	Engineering judgement	132
Benzene	71432		Mobile internal combustion sources	Light duty gasoline truck exhaust emissions		3.24% benzene of exhaust HCs	Engineering judgement	132
Benzene	71432		Mobile internal combustion sources	Light duty gasoline truck exhaust emissions		1.1% benzene of evaporative HCs	Engineering judgement	132
Benzene	71432		Mobile internal combustion sources	Light duty diesel vehicle exhaust emissions		2.4% benzene of exhaust HCs	Engineering judgement	132
Benzene	71432		Mobile internal combustion sources	Light duty diesel truck exhaust emissions		2.4% benzene of exhaust HCs	Engineering judgement	132
Benzene	71432		Mobile internal combustion sources	Heavy duty gasoline vehicle exhaust emissions		3.48% benzene of exhaust HCs	Engineering judgement	132
Benzene	71432		Mobile internal combustion sources	Heavy duty diesel vehicle exhaust emissions		1.10% benzene of exhaust HCs	Engineering judgement	132
Benzene	71432		Wood combustion, residential	Small airtight woodstoves, birch wood		67.8 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Benzene	71432		Wood combustion, residential	Small airtight woodstoves, birch wood		1286 mg/kg dry fuel burned	Starved air conditions, based on emission tests	57
Benzene	71432		Wood combustion, residential	Small airtight woodstoves, spruce wood		269 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Benzene	71432		Waste oil combustion	Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	0.005 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, assumes 97% DRE	55
Benzene	71432		Natural gas combustion	Boilers, exhaust system	102006	1.18% by vol (or 4% by wt) benzene	South Coast study, California, engineering judgement	132
Benzene	71432	2491	Wood preserving	Thermal (pan) evaporation of pentachlorophenol wastewater		<5 mg/air gas vented	Average value	6
Benzene	71432	2491	Wood preserving	Incineration of waste	307005	Not detectable	Controlled with baghouse	6
Benzene	71432	2865	Cumene production	Benzene azeotrope drying column	30115402	0.02 g/kg cumene produced	Uncontrolled, based on hypothetical plant producing 227 kg cumene/yr	132

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzene	71432	2865	Cumene production	Benzene azeotrope drying column	30115602	0.001 g/kg cumene produced	Controlled, flare, 95% efficiency	132
Benzene	71432	2865	Cumene production	Catalyst mix tank scrubber	30115603	0.16 g VOC/kg cumene produced	Uncontrolled, 99.4 wt% benzene	132
Benzene	71432	2865	Cumene production	Catalyst mix tank scrubber	30115603	0.008 g VOC/kg cumene produced	Controlled, flare, 95% efficiency, 99.4 wt% benzene	132
Benzene	71432	2865	Cumene production	Wash-decanter system	30115604	0.01 g VOC/kg cumene produced	Uncontrolled, 78.4 wt% benzene	132
Benzene	71432	2865	Cumene production	Wash-decanter system	30115604	0.0005 g VOC/kg cumene produced	Controlled, flare, 95% efficiency, 78.4 wt% benzene	132
Benzene	71432	2865	Cumene production	Benzene recovery column	30115605	0.017 g/kg cumene produced	Uncontrolled	132
Benzene	71432	2865	Cumene production	Benzene recovery column	30115605	0.00085 g/kg cumene produced	Controlled, flare, 95% efficiency	132
Benzene	71432	2865	Cyclohexane production by benzene hydrogenation process	Storage	301157	425 g/Mg cyclohexane produced	Based on model plant with capacity of 50 Gg/yr, uncontrolled	146
Benzene	71432	2865	Cyclohexane production by benzene hydrogenation process	Storage	301157	421 g/Mg cyclohexane produced	Based on model plant with capacity of 150 Gg/yr, uncontrolled	146
Benzene	71432	2865	Cyclohexane production by benzene hydrogenation process	Storage	301157	420 g/Mg cyclohexane produced	Based on model plant with capacity of 250 Gg/yr, uncontrolled	146
Benzene	71432	2865	Cyclohexane production by benzene hydrogenation process	Storage	301157	63.6 g/Mg cyclohexane produced	Based on model plant with 50 Gg/yr capacity, controlled by internal floating-roof tanks	146
Benzene	71432	2865	Cyclohexane production by benzene hydrogenation process	Storage	301157	63.2 g/Mg cyclohexane produced	Based on model plant with 150 Gg/yr capacity, controlled by internal floating-roof tanks	146
Benzene	71432	2865	Cyclohexane production by benzene hydrogenation process	Storage	301157	63.0 g/Mg cyclohexane produced	Based on model plant with 250 Gg/yr capacity, controlled by internal floating-roof tanks	146
Benzene	71432	2865	Cyclohexane production by benzene hydrogenation process	Fugitive emissions	30115780	154 g/Mg cyclohexane produced	Based on model plant with capacity of 50 Gg/yr, uncontrolled	146
Benzene	71432	2865	Cyclohexane production by benzene hydrogenation process	Fugitive emissions	30115780	51.4 g/Mg cyclohexane produced	Based on model plant with capacity of 150 Gg/yr, uncontrolled	146
Benzene	71432	2865	Cyclohexane production by benzene hydrogenation process	Fugitive emissions	30115780	7.0 g/Mg cyclohexane produced	Based on model plant with capacity of 250 Gg/yr, controlled by inspection/maintenance	146

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzene	71432	2865	Cyclohexane production by benzene hydrogenation process	Fugitive emissions	30115780	30.8 g/kg cyclohexane produced	Based on model plant with capacity of 250 Gg/yr, uncontrolled	146
Benzene	71432	2865	Cyclohexane production by benzene hydrogenation process	Fugitive emissions	30115780	35.0 g/kg cyclohexane produced	Based on model plant with 50 Gg/yr capacity, controlled by inspection/maintenance	146
Benzene	71432	2865	Cyclohexane production by benzene hydrogenation process	Fugitive emissions	30115780	11.7 g/kg cyclohexane produced	Based on model plant with 150 Gg/yr capacity, controlled by inspection/maintenance	146
Benzene	71432	2865	Ethylbenzene/styrene production	Atmospheric/pressure column vents	301169	1.2 g/kg ethylbenzene produced	Uncontrolled, based on model plant with capacity of 300 million kg/yr	132
Benzene	71432	2865	Ethylbenzene/styrene production	Atmospheric/pressure column vents	301169	0.012-0.48 g/kg ethylbenz/styrene prod	Controlled, flare 60-99% efficiency, based on model plant with capacity of 300 million kg/yr	132
Benzene	71432	2865	Ethylbenzene/styrene production	Secondary emissions	301169	0.067 g/kg ethylbenz/styrene produced	Uncontrolled, based on model plant with capacity of 300 million kg/yr	132
Benzene	71432	2865	Ethylbenzene/styrene production	Benzene/toluene vacuum vent	301169	3.0 g/kg ethylbenz/styrene produced	Uncontrolled, model plant with capacity of 300 million kg/yr	132
Benzene	71432	2865	Ethylbenzene/styrene production	Benzene/toluene vacuum vent	301169	0.03-1.2 g/kg ethylbenz/styrene produced	Controlled, flare 60-99% efficiency, model plant with capacity of 300 million kg/yr	132
Benzene	71432	2865	Ethylbenzene/styrene production	Other vacuum vents	301169	0.05 g/kg ethylbenz/styrene produced	Uncontrolled, model plant with capacity of 300 million kg/yr	132
Benzene	71432	2865	Ethylbenzene/styrene production	Other vacuum vents	301169	0.0005-0.002 g/kg ethylbenz/styr prod	Controlled, flare 60-99% efficiency, model plant with capacity of 300 million kg/yr	132
Benzene	71432	2865	Ethylbenzene/styrene production	Hydrogen separation tank	301169	0.003 g/kg ethylbenz/styrene produced	Uncontrolled, model plant with capacity of 300 million kg/yr	132
Benzene	71432	2865	Ethylbenzene/styrene production	Hydrogen separation tank	301169	0.00003-0.0012g/kg ethylbenz/styren prod	Controlled, 60-99% efficiency, flare, model plant with capacity of 300 million kg/yr	132
Benzene	71432	2865	Ethylbenzene/styrene production	Storage and handling	301169	0.57 g/kg ethylbenz/styrene produced	Uncontrolled, model plant with capacity of 300 million kg/yr	132
Benzene	71432	2865	Ethylbenzene/styrene production	Storage and handling	301169	0.57 g/kg ethylbenz/styrene produced	Uncontrolled, model plant with capacity of 300 kg/yr	132

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzene	71432	2865	Ethylbenzene/styrene production	Storage and handling	301169	0.086 g/kg ethylbenz/styrene produced	Controlled, floating roof, 85% efficiency, model plant with capacity of 300 million kg/yr	132
Benzene	71432	2865	Ethylbenzene/styrene production	Storage and handling	301169	0.00057 g/kg ethylbenz/styrene produced	Controlled, vented to flare, 99% efficiency, model plant with capacity of 300 million kg/yr	132
Benzene	71432	2865	Ethylbenzene/styrene production	Storage and handling	301169	0.114 g/kg ethylbenz/styrene produced	Controlled, refrigerated vent condenser, 80% efficiency, model plant w/ capac. of 300 million kg/yr	132
Benzene	71432	2865	Ethylbenzene/styrene production	Alkylation reactor area vents	30116902	0.3 g/kg ethylbenz/styrene produced	Uncontrolled, for ethylbenzene production, based on model plant capacity of 300 million kg/yr	132
Benzene	71432	2865	Ethylbenzene/styrene production	Alkylation reactor area vents	30116902	0.0003 g/kg ethylbenz/styrene produced	Controlled, process heater 99% efficiency, based on model plant capacity of 300 million kg/yr	132
Benzene	71432	2865	Ethylbenzene/styrene production	Fugitive emissions	30116980	0.11 g/kg ethylbenz/styrene produced	Uncontrolled, model plant with capacity of 300 million kg/yr	132
Benzene	71432	2865	Ethylbenzene/styrene production	Fugitive emissions	30116980	0.029 g/kg ethylbenz/styrene produced	Controlled, detection and correction, 74% efficiency, model plant with capacity of 300 million kg/yr	132
Benzene	71432	2865	Nitrobenzene production	Benzene storage	301195	0.283 g/kg nitrobenzene	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Benzene storage	301195	0.0425 g/kg nitrobenzene	Controlled, internal floating roof, 85% eff., based on 90,000 Mg/yr capacity factor model plant	132
Benzene	71432	2865	Nitrobenzene production	Secondary emissions	301195	0.10 g/kg nitrobenzer	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Secondary: total with vent absorber or total with thermal oxidizer	301195	2.45 g/kg nitrobenzene	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Small benzene storage	301195	0.078 g/kg nitrobenzene	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Small benzene storage	301195	0.077 g/kg nitrobenzene	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzene	71432	2865	Nitrobenzene production	Benzene storage	301195	0.281 g/kg nitrobenzene	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Benzene storage	301195	0.283 g/kg nitrobenzene produced	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Benzene storage	301195	0.0421 g/kg nitrobenzene produced	Controlled, floating roof, 85% eff., based on 150,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Secondary emissions	301195	0.10 g/kg nitrobenzene produced	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Secondary: total with vent absorber or thermal oxidizer	301195	2.19 g/kg nitrobenzene produced	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Reactor and separator	30119502	0.960 g/kg nitrobenzene	Uncontrolled, for 90,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Reactor and separator	30119502	0.960 g/kg nitrobenzene	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Waste-acid stripper	30119503	0.170 g/kg nitrobenzene	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Waste-acid stripper	30119503	0.170 g/kg nitrobenzene produced	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Wash and neutralization	30119504	0.0081 g/kg nitrobenzene	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Wash and neutralization	30119504	0.0776 g/kg nitrobenzene	Controlled, vent absorber, 94.6% eff., based on 90,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Wash and neutralization	30119504	0.0081 g/kg nitrobenzene produced	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Wash and neutralization	30119504	0.0774 g/kg nitrobenzene	Controlled, vent absorber, 94.6% eff., based on 150,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Nitrobenzene stripper	30119505	0.170 g/kg nitrobenzene	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Nitrobenzene stripper	30119505	0.0144 g/kg nitrobenzene	Controlled, thermal oxidizer, 99% eff., based on 90,000 Mg/yr	132

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzene	71432	2865	Nitrobenzene production	Nitrobenzene stripper	30119505	0.170 g/kg nitrobenzene	capacity model plant Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Nitrobenzene stripper	30119505	0.0143 g/kg nitrobenzene	Controlled, thermal oxidizer, 99.0% eff., based on 150,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Waste-acid storage	30119506	0.051 g/kg nitrobenzene	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Waste-acid storage	30119506	0.048 g/kg nitrobenzene	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Fugitive emissions	30119580	0.63 g/kg nitrobenzene	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Benzene	71432	2865	Nitrobenzene production	Fugitive emissions	30119580	0.165 g/kg nitrobenzene	Contr., 67.7% eff., detect/correct minor leaks/mech. seals, based on 90,000 Mg/yr cap. model plant	132
Benzene	71432	2865	Nitrobenzene production	Fugitive emissions	30119580	0.38 g/kg nitrobenzene produced	Uncontrolled, each plant, 42 pumps, 500 process valves, 20 pressure-relief valves	132
Benzene	71432	2865	Nitrobenzene production	Fugitive emissions	30119580	0.099 g/kg nitrobenzene produced	Contr., 67.7% eff., detect/correct leaks/mech. seals, 42 pumps, 500 process valves, 20 pres-rel val.	132
Benzene	71432	2865	Phenol production using cumene process	"Spent air" from the oxidizer	30120202	2 x 10 ⁻⁶ kg/kg phenol	At one source, measured at post oxidizer condenser vent	132
Benzene	71432	2865	Chlorobenzene production	Benzene storage	301301	0.41 g/kg chlorobenzene	Uncontrolled	132
Benzene	71432	2865	Chlorobenzene production	Benzene storage	301301	0.06 g/kg chlorobenzene	Controlled, internal floating roof, 85% efficiency	132
Benzene	71432	2865	Chlorobenzene production	Atmospheric distillation vents	3013010	0.32 g/kg chlorobenzene produced	Uncontrolled	132
Benzene	71432	2865	Chlorobenzene production	Atmospheric distillation vents	3013010	0.0042 g/kg chlorobenzene produced	Controlled, carbon adsorption, 98.7% efficiency	132
Benzene	71432	2865	Chlorobenzene production	Tail gas treatment	30130101	0.52 g/kg chlorobenzene produced	Uncontrolled, hypothetical plant	132
Benzene	71432	2865	Chlorobenzene production	Tail gas treatment	30130101	0.0067 g/kg chlorobenzene	Controlled, carbon adsorption,	132

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzene	71432	2865	Chlorobenzene production	Fugitive emissions	30130180	produced	98.7% eff., based on hypothetical plant	132
Benzene	71432	2865	Chlorobenzene production	Fugitive emissions	30130180	0.58 g/kg chlorobenzene	Uncontrolled	132
Benzene	71432	2869	Aniline production	Process vents	30103403	0.16 g/kg chlorobenzene	Controlled, detection and repair of major leaks, 71% efficiency	132
Benzene	71432	2869	Hono-, and dichlorobenzene production, direct chlorination	Absorption	3012535	0.0057 kg/Mg aniline	Uncontrolled, from data provided by producer	132
Benzene	71432	2869	Caprolactam production	Cyclohexanone purification	30121002	0.016 g/kg caprolactam produced	Control uncertain, based on tests and mass balance	95
Benzene	71432	2869	Caprolactam production	Neutralization reactor	30121005	0.0013 g/kg caprolactam produced	Controlled, condenser 90% eff model plant	145
Benzene	71432	2869	Caprolactam production	Phase separation, solvent recovery, and stripping	30121005	0.021 g/kg caprolactam produced	Controlled, condenser 70% eff model plant	145
Benzene	71432	2869	Linear alkylbenzene olefin process	Benzene azeotropic column vent	30121101	3.7 g/Mg LAB produced	Controlled, condenser 90% eff model plant	145
Benzene	71432	2869	Linear alkylbenzene olefin process	Benzene azeotropic column vent	30121101	0.00074 g/Mg LAB produced	Uncontrolled, all LAB olefin process emission factors based on 90 Gg/yr hypothetical plant	132
Benzene	71432	2869	Linear alkylbenzene chlorination process	Benzene azeotropic column vent	30121102	3.7 g/Mg LAB produced	Controlled, used as fuel, 99.98% eff.	132
Benzene	71432	2869	Linear alkylbenzene chlorination process	Benzene azeotropic column vent	30121102	0.00074 g/Mg LAB produced	Uncontrolled, all LAB chlorination emission factors based on a 90 Gg/yr hypothetical plant	132
Benzene	71432	2869	Linear alkylbenzene chlorination process	Hydrogen fluoride scrubber column vent	30121103	11 g/Mg LAB produced	Controlled, used as fuel, 99.98% eff.	132
Benzene	71432	2869	Linear alkylbenzene olefin process	Hydrogen fluoride scrubber column vent	30121103	0.0022 g/Mg LAB produced	Uncontrolled	132
Benzene	71432	2869	Linear alkylbenzene olefin process	Hydrogen fluoride scrubber column vent	30121103	1.1 g/Mg LAB produced	Controlled, used as fuel, 99.98% eff.	132
Benzene	71432	2869	Linear alkylbenzene olefin process	Hydrochloric acid absorber	30121123	250 g/Mg LAB produced	Controlled, flare, 90% eff.	132
Benzene	71432	2869	Linear alkylbenzene				Uncontrolled	132

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzene	71432	2869	chlorination process Linear alkylbenzene chlorination process	vent	30121123	0.05 g/Mg LAB produced	Controlled, used as fuel, 99.98% eff.	132
Benzene	71432	2869	Linear alkylbenzene chlorination process	Hydrochloric acid absorber vent	30121124	12.3 g/Mg LAB produced	Uncontrolled	132
Benzene	71432	2869	Linear alkylbenzene chlorination process	Atmospheric wash decanter vent	30121124	0.0025 g/Mg LAB produced	Controlled, used as fuel, 99.98% eff.	132
Benzene	71432	2869	Linear alkylbenzene chlorination process	Atmospheric wash decanter vent	30121125	3.7 g/Mg LAB produced	Uncontrolled	132
Benzene	71432	2869	Linear alkylbenzene chlorination process	Benzene stripping column vent	30121125	0.00074 g/Mg LAB produced	Controlled, used as fuel, 99.98% eff.	132
Benzene	71432	2911	Production of ethylene from naphtha/gas oil	Benzene stripping column vent	301197	791.9 g/Mg ethylene produced	Uncontr., hypothetical plant using 50% naphtha/50% gas oil as feed w/ ethylene capac. 544.2 Gg/yr	132
Benzene	71432	2911	Production of ethylene from naphtha/gas oil	Intermittent emissions, dual compressor train	301197	101.1 g/Mg ethylene produced	Uncontr., hypothetical plant using 50% naphtha/50% gas oil as feed w/ ethylene capac. 544.2 Gg/yr	132
Benzene	71432	2911	Production of ethylene from naphtha/gas oil	Intermittent emissions, dual compressor train	301197	79.2-15.8 g/Mg ethylene produced	Controlled, flares (90-98% efficiency)	132
Benzene	71432	2911	Production of ethylene from naphtha/gas oil	Storage tanks	301197	14.7 g/Mg ethylene produced	Uncontrolled	132
Benzene	71432	2911	Production of ethylene from naphtha/gas oil	Storage tanks	301197	22.1 g/Mg ethylene produced	Controlled, floating roof tank, 85% efficiency	132
Benzene	71432	2911	Production of ethylene from naphtha/gas oil	Intermittent emissions, dual compressor train	301197	10.1-2.0 g/Mg ethylene produced	Controlled, flares (90-98% efficiency)	132
Benzene	71432	2911	Production of ethylene from naphtha/gas oil	Charge gas compressor lubricating oil vent, single compressor train	30119745	0.200 g/Mg ethylene produced	Uncontr., hypothetical plant using 50% naphtha/50% gas oil as feed w/ ethylene capac. 544.2 Gg/yr	132
Benzene	71432	2911	Production of ethylene from naphtha/gas oil	Charge gas compressor lubricating oil vent, dual compressor train	30119745	0.400 g/Mg ethylene produced	Uncontr., hypothetical plant using 50% naphtha/50% gas oil as feed w/ ethylene capac. 544.2 Gg/yr	132
Benzene	71432	2911	Petroleum refinery with cracking/reforming	Fugitives	306	7.2 lb/ton total HC	Assumes fugitives are 0.36% benzene	92

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzene	71432	2911	Petroleum refinery without cracking/reforming	Fugitives	306	0.72 lb/ton total HC	Assumes benzene is 0.036% of total HC	92
Benzene	71432	2911	Storage losses at a typical gasoline bulk terminal	Fixed roof, working loss	404001	0.2 mg/year/tank of gasoline	Based on terminal with 950,000 liters/day and four storage tanks for gasoline	132
Benzene	71432	2911	Storage losses at a typical gasoline bulk terminal	Fixed roof, breathing loss	404001	0.05 mg/year/tank of gasoline	Based on terminal with 950,000 liters/day and four storage tanks for gasoline	132
Benzene	71432	2911	Storage losses at a typical gasoline bulk terminal	External floating roof, working loss	404001	(0.46 x 10E-7 0)Mg/yr. 0 is throughput	Based on a capacity of 36,000 bbls	132
Benzene	71432	2911	Storage losses at a typical gasoline bulk terminal	Storage loss, primary seal, external floating roof	404001	0.05 mg/year/tank of gasoline	Based on a capacity of 36,000 bbls	132
Benzene	71432	2911	Storage losses at a typical gasoline bulk terminal	Storage loss, secondary metallic shoe seal, external floating roof	404001	0.02 mg/year/tank of gasoline	Based on a capacity of 36,000 bbls	132
Benzene	71432	4491	Gasoline storage at bulk plants	Storage tanks, fixed roof breathing loss	404002	3.6 mg/liter gasoline	Based on benzene/vapor ratio of 0.006, typical bulk plant w/ gas throughput of 19,000 liters/day	132
Benzene	71432	4491	Gasoline storage at bulk plants	Storage tanks, fixed roof filling loss	404002	6.9 mg/liter gasoline	Terminal with 950,000 liters/day, four storage tanks for gasoline	132
Benzene	71432	4491	Gasoline storage at bulk plants	Storage tanks, fixed roof draining loss	404002	2.7 mg/liter gasoline	Terminal with 950,000 liters/day, four storage tanks for gasoline	132
Benzene	71432	4491	Gasoline loading at bulk plants	Gasoline loading racks, splash loading	404002	8.6 mg/liter gasoline	Terminal with 950,000 liters/day, four storage tanks for gasoline	132
Benzene	71432	4491	Gasoline loading at bulk plants	Gasoline loading racks, submerged loading	404002	3.5 mg/liter gasoline	Terminal with 950,000 liters/day, four storage tanks for gasoline	132
Benzene	71432	4491	Gasoline loading at bulk plants	Submerged loading (balance service)	404002	5.9 mg/liter gasoline	Terminal with 950,000 liters/day, four storage tanks for gasoline	132
Benzene	71432	4491	Gasoline loading in marine vessels	Barge, typical situation, any cargo	406002	2.5 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Benzene	71432	4491	Gasoline loading in marine vessels	Barge, gas-freed, any cargo	406002	1.5 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzene	71432	4491	Gasoline loading in marine vessels	Ship/ocean barge cleaned, volatile previous cargo	4060023	1.1 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis girth	132
Benzene	71432	4491	Gasoline loading in marine vessels	Ship/ocean barge gas-freed, volatile previous cargo	4060023	0.5 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis girth	132
Benzene	71432	4491	Gasoline loading in marine vessels	Ship/ocean barge any condition, nonvolatile previous cargo	4060023	0.5 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis girth	132
Benzene	71432	4491	Gasoline loading in marine vessels	Ship/ocean barge typical situation, any cargo	4060023	1.3 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis girth	132
Benzene	71432	4491	Gasoline loading in marine vessels	Ship/ocean barge ballasted, volatile previous cargo	40600235	1.2 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis girth	132
Benzene	71432	4491	Gasoline loading in marine vessels	Ship/ocean barge uncleaned, volatile previous cargo	40600237	1.9 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis girth	132
Benzene	71432	4491	Gasoline loading in marine vessels	Barge, uncleaned, volatile previous cargo	40600238	2.8 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis girth	132
Benzene	71432	4491	Gasoline loading in marine vessels	Tanker ballasting	40600241	0.6 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis girth	132
Benzene	71432	4491	Gasoline loading in marine vessels	Transit	40600242	1.9 mg (per wk)/liter gas transfer	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis girth	132
Benzene	71432	4581	Jet engine exhaust	Engine	2	13.4 lb/ton total hydrocarbons emitted	Benzene assumed to be 0.067% of HC emissions	92
Benzene	71432	4925	Coke oven gas boiler	Emission stream	10200802	0.42% by vol (1.90% by wt)	South Coast study, California, engineering judgement	132
Benzene	71432	4925	Production of ethylene from naphtha/gas oil	Fugitive emissions	301197	45.9 g/Mg ethylene produced	Uncontrolled	132
Benzene	71432	4925	Production of ethylene from naphtha/gas oil	Fugitive emissions	301197	8.8 g/Mg ethylene produced	Detection/correction of leaks	132

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzene	71432	4925	Production of ethylene from naphthalene gas oil	Secondary (wastewater, etc.)	301197	21.7 g/Mg ethylene produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	Cooling tower, direct water	303003	270 g/Mg coke produced	Uncontrolled, based on information in R10 for Benzene Emissions from Coke By-product Recovery Plants	132
Benzene	71432	4925	Coke by-product plants	Cooling tower, direct water	303003	51 g/Mg coke produced	Controlled, use tar bottom final cooler, 81% control efficiency	132
Benzene	71432	4925	Coke by-product plants	Cooling tower, direct water	303003	Negligible	Use wash oil final cooler, 100% efficiency	132
Benzene	71432	4925	Coke by-product plants	Cooling tower, tar bottom	303003	70 g/Mg coke produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	Cooling tower, tar bottom	303003	Negligible	Use wash oil final cooler, 100% efficiency	132
Benzene	71432	4925	Coke by-product plants	Light-oil condenser vent	303003	89 g/Mg coke produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	Light-oil condenser vent	303003	1.8 g/Mg coke produced	Coke oven gas blanketing from gas holder, 98% efficiency	132
Benzene	71432	4925	Coke by-product plants	Naphthalene separation	303003	87 g/Mg coke produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	Naphthalene processing	303003	20 g/Mg coke produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	Tar-intercepting sump	303003	95 g/Mg coke produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	Tar-intercepting sump	303003	1.9 g/Mg coke produced	Controlled, coke oven gas blanketing from collecting main, 98% efficiency	132
Benzene	71432	4925	Coke by-product plants	Tar dewatering	303003	21 g/Mg coke produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	Tar dewatering	303003	2.1 g/Mg coke produced	Controlled, wash oil scrubber, 90% efficiency	132
Benzene	71432	4925	Coke by-product plants	Tar dewatering	303003	0.42 g/Mg coke produced	Controlled, coke oven gas blanketing from collecting main, 98% efficiency	132
Benzene	71432	4925	Coke by-product plants	Tar decanter	303003	77 g/Mg coke produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	Tar decanter	303003	3.9 g/Mg coke produced	Controlled, coke oven gas blanketing from collecting main, 95% efficiency	132

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzene	71432	4925	Coke by-product plants	Tar storage	303003	12 g/Mg coke produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	Tar storage	303003	0.24 g/Mg coke produced	Controlled, coke oven gas blanketing from collecting oven, 98% efficiency	132
Benzene	71432	4925	Coke by-product plants	Tar storage	303003	1.2 g/Mg coke produced	Controlled, wash-oil scrubber, 90% efficiency	132
Benzene	71432	4925	Coke by-product plants	Light-oil sump	303003	15 g/Mg coke produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	Light-oil sump	303003	0.3 g/Mg coke produced	Controlled, source enclosure, 98% efficiency	132
Benzene	71432	4925	Coke by-product plants	Light-oil storage	303003	5.8 g/Mg coke produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	Light-oil storage	303003	0.12 g/Mg coke produced	Controlled, coke oven gas blanketing from gas holder, 98% efficiency	132
Benzene	71432	4925	Coke by-product plants	Light-oil storage	303003	0.58 g/Mg coke produced	Wash-oil scrubber, 90% efficiency	132
Benzene	71432	4925	Coke by-product plants	BTX storage	303003	5.8 g/Mg coke produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	BTX storage	303003	0.12 g/Mg coke produced	Coke oven gas blanketing from gas holder, 98% efficiency	132
Benzene	71432	4925	Coke by-product plants	BTX storage	303003	0.58 g/Mg coke produced	Wash-oil scrubber, 90% efficiency	132
Benzene	71432	4925	Coke by-product plants	Benzene storage	303003	5.8 g/Mg coke produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	Benzene storage	303003	0.12 g/Mg coke produced	Controlled, nitrogen or natural gas blanketing system, 98% efficiency	132
Benzene	71432	4925	Coke by-product plants	Benzene storage	303003	0.58 g/Mg coke produced	Wash-oil scrubber, 90% efficiency	132
Benzene	71432	4925	Coke by-product plants	Flushing-liquor circulation tank	303003	9 g/Mg coke produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	Flushing-liquor circulation tank	303003	0.18 g/Mg coke produced	Coke oven gas blanketing from collecting main, 98% efficiency	132
Benzene	71432	4925	Coke by-product plants	Excess-ammonia liquor tank	303003	9 g/Mg coke produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	Excess-ammonia liquor tank	303003	0.18 g/Mg coke produced	Coke oven gas blanketing from collecting main, 98% efficiency	132

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Benzene	71432	4925	Coke by-product plants	Wash-oil decanter	303003	3.8 g/Mg coke produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	Wash-oil decanter	303003	0.076 g/Mg coke produced	Controlled, 98% efficiency, coke oven gas blanketing from gas holder	132
Benzene	71432	4925	Coke by-product plants	Wash-oil circulation tank	303003	3.8 g/Mg coke produced	Uncontrolled	132
Benzene	71432	4925	Coke by-product plants	Wash-oil circulation tank	303003	0.76 g/Mg coke produced	Controlled, 98% efficiency, coke oven gas blanketing from gas holder	132
Benzene	71432	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	10.2 mg/kg dry sludge	Average of five tests, scrubber	101
Benzene	71432	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	0.4 mg/kg dry sludge	One test, scrubber	101
Benzene	71432	4953	Wastewater treatment	POTW	50100701	0.57 Mg/Mg of benzene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Benzene	71432	4953	Sewage sludge incineration	Stack gases	50200506	5-31 ug/dscm	Emission tests using volatile organic sampling train	132
Benzene	71432	5032	Asphalt distribution/use	Entire process		0.077 lb/ton asphalt applied	Benzene assumed to be 9.6% of TNC	92
Benzene	71432	5171	Gasoline loading at bulk terminals and bulk plants	Submerged (either top or bottom submerged)	40600131	3.5 mg benzene vapor/l gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Benzene	71432	5171	Gasoline loading at bulk terminals and bulk plants	Splash	40600136	8.6 mg benzene vapor/l gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Benzene	71432	5171	Gasoline loading at bulk terminals and bulk plants	Balance service	4060014	5.9 mg benzene vapor/l gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Benzene	71432	5541	Gasoline storage at typical service station	Underground storage tanks, tank filling losses (splash fill)	40600301	8.3 mg/liter gasoline	Terminal with 950,000 liters/day, four storage tanks for gasoline	132
Benzene	71432	5541	Vehicle refueling	Vapor loss	40600301	0.029 g/gal of gas pumped		4
Benzene	71432	5541	Gasoline storage at typical service station	Underground storage tanks, tank filling losses (submerged fill)	40600302	5.3 mg/liter gasoline	Terminal with 950,000 liters/day, four storage tanks for gasoline	132
Benzene	71432	5541	Gasoline storage at typical service station	Underground storage tanks, tank filling losses (balanced)	40600306	0.2 mg/liter gasoline	Terminal with 950,000 liters/day, four storage tanks for gasoline	132

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzene	71432	5541	Gasoline storage at typical service station	submerged filling)	40600307	0.7 mg/liter gasoline	Terminal with 950,000 liters/day, four storage tanks for gasoline	132
Benzene	71432	5541	Emissions from a typical service station	Underground storage tanks, breathing losses	406004	0.8 mg/liter gasoline	Controlled, based on benz./vapor ratio of 0.006 typical bulk pit w/ gas throughput of 19,000 l/day	132
Benzene	71432	5541	Emissions from a typical service station	Automobile refueling displacement losses	40600401	7.9 mg/liter gasoline	Uncontrolled, based on benz./vapor ratio of 0.006 typical bulk pit w/ gas throughput of 19,000 l/day	132
Benzene	71432	5541	Emissions from a typical service station	Automobile refueling displacement losses	40600402	0.5 mg/liter gasoline	Controlled, based on benz./vapor ratio of 0.006 typical bulk pit w/ gas throughput of 19,000 l/day	132
Benzene	71432	806	Hospital waste incineration	Spillage	502001	0.1-0.4 lb/hr benzene	Test report by California Air Resources Board, engineering judgement	132
Benz(a)pyrene	50328		Mobile internal combustion sources	V-8 gasoline engine		25 ug/mile	Uncontrolled, mounted on dynamometer, est. 8000-12,000 mileage, incl. 8ap fr. condensor collect. tar	114
Benz(a)pyrene	50328		Mobile internal combustion sources	V-8 gasoline engine		16 ug/mile	Uncontrolled, mounted on dynamometer, estimated 19,000-25,000 mileage	114
Benz(a)pyrene	50328		Mobile internal combustion sources	V-8 gasoline engine		24 ug/mile	Uncontrolled, mounted on dynamometer, estimated 25,500-29,000 mileage	114
Benz(a)pyrene	50328		Mobile internal combustion sources	Diesel car engine		3.9 ng/mg particulate	Range 1.3 - 7.3 ng/mg	114
Benz(a)pyrene	50328		Mobile internal combustion sources	8 cylinder car engine		4.17 ug/mile	Catalyst removed, 1980 car	114
Benz(a)pyrene	50328		Mobile internal combustion sources	4 cylinder car engine		0.07 ug/mile	4 cylinder catalyst, 1981 car	114
Benz(a)pyrene	50328		Mobile internal combustion sources	8 cylinder engine		2.72 ug/mile	Precatalyst, 1974 car	114
Benz(a)pyrene	50328		Mobile internal combustion sources	Turbocharged diesel truck engine		25 ug/kg fuel	1260 rpm, no load	114

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzo(a)pyrene	50328		Mobile internal combustion sources	Turbocharged diesel truck engine		8 ug/kg fuel	1260 rpm, half load	114
Benzo(a)pyrene	50328		Mobile internal combustion sources	Turbocharged diesel truck engine		16 ug/kg fuel	1800 rpm, full load	114
Benzo(a)pyrene	50328		Wood combustion, residential	Small airtight woodstoves, birch wood		0.56 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Benzo(a)pyrene	50328		Wood combustion, residential	Small airtight woodstoves, birch wood		0.24 mg/kg dry fuel burned	Starved air conditions, based on emission tests	57
Benzo(a)pyrene	50328		Wood combustion, residential	Small airtight woodstoves, spruce wood		0.05 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Benzo(a)pyrene	50328		Wood combustion, residential	Small airtight woodstoves, spruce wood		0.62 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Benzo(a)pyrene	50328		Wood combustion, residential	Small airtight woodstoves, spruce wood	30600201	0.218 kg/1000 barrels of feed	Uncontrolled	148
Benzo(a)pyrene	50328	2911	Petroleum refinery	Fluidized bed catalytic cracker unit regenerator	30600201	1.45 x 10E-5 kg/1000 barrels of feed	Controlled by CO boiler	148
Benzo(a)pyrene	50328	2911	Petroleum refinery	Fluidized bed catalytic cracker unit regenerator	30300304	0.0005 g/Mg coal charged	Uncontrolled	114
Benzo(a)pyrene	50328	3312	Coking	Coke quenching	30300308	141 ng/Mm3	Wet ESP	114
Benzo(a)pyrene	50328	3312	Coking	Door leaks	30300308	1.8 ng/Mm3	Low energy wet scrubber, represents gaseous and particulate PM	114
Benzo(a)pyrene	50328	3312	Coking	Door leaks	30300702	1.0 g/Mu-hr energy consumed by furnace	Average of 0.002, 0.007, 2 incinerators each with wet scrubber, 1 common stack	114
Benzo(a)pyrene	50328	3313	Ferroalloy production	Electric arc furnace ferrosilicon production, semi-sealed furnace	5	0.004 g/Mg dry sludge feed	ESP	114
Benzo(a)pyrene	50328	4952	Sewage sludge incineration	Incinerator	501001	48 mg/Mg waste burned	ESP	114
Benzo(a)pyrene	50328	4953	Municipal waste combustion	Mass burn, water wall incinerator	501001	131 mg/Mg waste burned	ESP	114
Benzo(a)pyrene	50328	4953	Municipal waste combustion	RF-fired	501001	0.048 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Benzo(a)pyrene	50328	4953	Municipal waste combustion	Mass burn heat recovery facility	501001	0.048 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Benzo(a)pyrene	50328	4953	Municipal waste combustion	Mass burn nonheat recovery	501001	0.048 g/Mg of waste combusted	Controlled by ESP, based on source test data	118

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzo(a)pyrene	50328	4953	Municipal waste combustion	facility	501001	0.13 g/Mg of waste combusted	test data	118
Benzo(a)pyrene	50328	4953	Municipal waste combustion	Refuse-derived fuel facility	501001	0.13 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Benzo(a)pyrene	50328	4953	Municipal waste combustion	Modular facility	501001	0.0038 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Benzo(a)pyrene	50328	4953	Municipal waste combustion	Mass burn heat recovery facility	501001	0.003 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Benzo(a)pyrene	50328	4953	Municipal waste combustion	Mass burn nonheat recovery facility	501001	0.003 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Benzo(a)pyrene	50328	4953	Municipal waste combustion	Refuse-derived fuel facility	501001	0.008 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Benzo(a)pyrene	50328	4953	Municipal waste combustion	Modular facility	501001	0.0002 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Benzo(a)pyrene	50328	4953	Municipal waste combustion	Multiple chamber, traveling grate incinerator	50100101	0.17 mg/Mg waste burned	Represents particulate POM, settling chamber	114
Benzo(a)pyrene	50328	4953	Municipal waste combustion	Multiple chamber, reciprocating stoker grate	50100101	13.5 mg/Mg waste burned	Uncontrolled, represents particulate POM	114
Benzo(a)pyrene	50328	4953	Municipal waste combustion	Multiple chamber, reciprocating stoker grate	50100101	0.20 mg/Mg waste burned	Wet scrubber, represents particulate POM	114
Benzo(a)pyrene	50328	4953	Municipal waste combustion	Incinerator	50100101	5.8 mg/m3	ESP, represents both gaseous and particulate POM	114
Benzo(a)pyrene	50328	4953	Commercial solid waste incineration	Multiple chamber with auxiliary gas burner	50100101	573 mg/Mg waste burned	Uncontrolled, represents primarily particulate POM	114
Benzo(a)pyrene	50328	4953	Commercial solid waste incineration	Single chamber incinerator	50100102	117 mg/Mg waste burned	Uncontrolled, represents particulate POM	114
Benzoic acid	65850	226	Woven fabric finishing	Tenter frames - resin finish	330001	7.1 mg/kg fabric	Uncontrolled, test data	52
Benzoic acid	65850	226	Woven fabric finishing	Curing ovens - resin finish	330001	130 mg/kg fabric	Uncontrolled, one test	52
Benzoic acid	65850	2865	Phthalic anhydride production - naphthalene process	Main process incinerator	301019	1.56 g/kg PA produced	Uncontrolled, test data and engineering judgement	120

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzoic acid	65850	2865	Phthalic anhydride production - naphthalene process	Main process incinerator	301019	0.05 g/kg PA produced	Controlled, test data and engineering judgement	120
Benzoic acid	65850	2865	Phthalic anhydride production - xylene process	Main process incinerator	301019	0.109 g/kg PA produced	Controlled, based on test data	120
Benzoic acid	65850	2865	Phthalic anhydride production - xylene process	Secondary incinerator	301019	0.0125 g/kg PA produced	Controlled, test data and engineering judgement	120
Benzoic acid	65850	2865	Phthalic anhydride production - xylene process	Main process incinerator	301019	3.12 g/kg PA produced	Uncontrolled, based on test data and engineering judgement	120
Benzoic acid	65850	2865	Phthalic anhydride production - xylene process	Secondary incinerator	301019	1.25 g/kg PA produced	Uncontrolled, based on test data and engineering judgement	120
Beryllium	7440417		Coal combustion, residential	Bituminous coal-fired boilers		17.0 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion, residential	Subbituminous coal-fired boilers		13.6 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion, residential	Anthracite coal-fired boilers		10.4 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion, residential	Lignite coal-fired boilers		27.5 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion, residential	Boilers fired by coal from northern plains region		13.6 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion, residential	Boilers fired by coal from rocky mountain region		15.2 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion, residential	Boilers fired by coal from appalachian region		19.5 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion, residential	Boilers fired by coal from interior region		20.9 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Beryllium	7440417		Wood combustion, residential	Woodstove without baffle		0.00014 g/Mg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Beryllium	7440417		Coal combustion	Bituminous coal-fired cyclone	1	<81 lb/10E12 Btu	Uncontrolled, calculated based on	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Beryllium	7440-41-7		Coal combustion	boilers, util//commerc/industr	1	<52 lb/10E12 Btu	engineering judgement	36
Beryllium	7440-41-7		Coal combustion	Bituminous coal-fired cyclone boilers, util//commerc/industr	1	0.52 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Beryllium	7440-41-7		Coal combustion	Bituminous coal-fired stoker boilers, util//commerc/industr	1	73 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Beryllium	7440-41-7		Coal combustion	Bituminous coal-fired stoker boilers, util//commerc/industr	1	9.8-46 lb/10E12 Btu	Uncontrolled, based on source tests	36
Beryllium	7440-41-7		Coal combustion	Bituminous coal-fired stoker boilers, util//commerc/industr	1	5.9 lb/10E12 Btu	Controlled with multiclone, based on source tests and engineering judgement	36
Beryllium	7440-41-7		Coal combustion	Lignite coal-fired pulverized (dry or wet bottom) boilers, util//com/indus	1	131 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Beryllium	7440-41-7		Coal combustion	Lignite coal-fired pulverized (dry or wet bottom) boilers, util//com/indus	1	64 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Beryllium	7440-41-7		Coal combustion	Lignite coal-fired pulverized (dry or wet bottom) boilers, util//com/indus	1	4.9 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Beryllium	7440-41-7		Coal combustion	Lignite coal-fired pulverized (dry or wet bottom) boilers, util//com/indus	1	0.18 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Beryllium	7440-41-7		Coal combustion	Lignite coal-fired cyclone boilers, util//commerc/industr	1	<130 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Beryllium	7440-41-7		Coal combustion	Lignite coal-fired cyclone boilers, util//commerc/industr	1	<84 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Beryllium	7440-41-7		Coal combustion	Lignite coal-fired cyclone boilers, util//commerc/industr	1	0.84 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Beryllium	7440-41-7		Coal combustion	Lignite coal-fired stoker boilers, util//commerc/industr	1	118 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Beryllium	7440417		Coal combustion	Lignite coal-fired stoker boilers, util/commerc/industrial	1	16-74 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion	Lignite coal-fired stoker boilers, util/commerc/industrial	1	9.5 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Beryllium	7440417		Oil combustion	Residual oil-fired boilers, util/commerc/industrial/residential	1	4.2 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Beryllium	7440417		Oil combustion	Distillate oil-fired boilers, util/commerc/industrial/residential	1	2.5 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Beryllium	7440417		Oil combustion	Distillate oil-fired boilers, util/commerc/industrial/residential	1	1.58 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Beryllium	7440417		Oil combustion	Distillate oil-fired boilers, util/commerc/industrial/residential	1	0.35 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Beryllium	7440417		Oil combustion	Distillate oil-fired boilers, util/commerc/industrial/residential	1	0.15 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Beryllium	7440417		Oil combustion	Residual oil-fired boilers, util/commerc/industrial/residential	1	2.65 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Beryllium	7440417		Oil combustion	Residual oil-fired boilers, util/commerc/industrial/residential	1	0.59 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Beryllium	7440417		Oil combustion	Residual oil-fired boilers, util/commerc/industrial/residential	1	0.25 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion	Bituminous coal-fired pulverized (dry or wet bottom) boilers, util/commerc/industrial	1	81 lb/10E12 Btu	Uncontrolled, based on source tests for dry bottom boilers	36
Beryllium	7440417		Coal combustion	Bituminous coal-fired pulverized (dry or wet bottom) boilers, util/commerc/industrial	1	52 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion	Bituminous coal-fired	1	3.0 lb/10E12 Btu	Controlled with ESP, based on	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Beryllium	7440417		Coal combustion	pulverized (dry or wet bottom) boilers, util/commer/ind	1	0.11 lb/10E12 Btu	source tests	36
Beryllium	7440417		Coal combustion	Bituminous coal-fired pulverized (dry or wet bottom) boilers, util/commer/ind	1		Controlled with scrubber, based on one source test	36
Beryllium	7440417		Coal combustion	Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/commer/ind	1	50 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion	Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/commer/ind	1	32 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion	Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/commer/ind	1	1.8 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion	Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/commer/ind	1	0.07 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion	Anthracite coal-fired cyclone boilers, util/commer/industr	1	<50 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion	Anthracite coal-fired cyclone boilers, util/commer/industr	1	<32 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion	Anthracite coal-fired cyclone boilers, util/commer/industr	1	0.32 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion	Anthracite coal-fired stoker boilers, util/commer/industr	1	45 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion	Anthracite coal-fired stoker boilers, util/commer/industr	1	6-28 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Beryllium	7440417		Coal combustion	Anthracite coal-fired stoker boilers, util/commer/industr	1	3.6 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Beryllium	7440417	1099	Beryl ore mining	Entire process	305	0.2 lb/ton ore mined	Engineering judgement	113
Beryllium	7440417	226	Woven fabric finishing	Tenter frames - resin finishing	330001	0.0096 mg/kg fabric	Uncontrolled, one test	52

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Beryllium	7440417	226	Woven fabric finishing	Thermosol dyeing	330001	0.00019 mg/kg fabric	Uncontrolled, one test	52
Beryllium	7440417	226	Woven fabric finishing	Heat setting	330001	0.0065 mg/kg fabric	Uncontrolled, based on test data	52
Beryllium	7440417	226	Woven fabric finishing	Curing oven - resin finish	330001	0.0043 mg/kg fabric	Uncontrolled, one test	52
Beryllium	7440417	3241	Cement manufacture - dry process	Entire process	305006	0.00003 lb/1000 tons produced	Engineering judgement	113
Beryllium	7440417	3241	Cement manufacture - wet process	Kiln	30500706	0.002 lb/ton produced	Engineering judgement	113
Beryllium	7440417	3241	Cement manufacture - wet process	Clinker cooler	30500714	0.0008 lb/ton produced	ESP control	113
Beryllium	7440417	3241	Cement manufacture - wet process	Clinker cooler	30500714	0.0009 lb/ton produced	Baghouse control	113
Beryllium	7440417	347	Beryllium metal fabrication	Entire process	309	0.1 lb/ton Be processed	Engineering judgement, controlled	113
Beryllium	7440417	36	Ceramics	Entire process	303	1 lb/ton Be processed	Engineering judgement, controlled	113
Beryllium	7440417	36	Beryllium alloy - stamping/drawing	Entire process	303	0.1 lb/ton Be processed	Engineering judgement	113
Beryllium	7440417	36	Beryllium alloy - production	Molding	303	0.01 lb/ton alloy produced	Uncontrolled	113
Beryllium	7440417	36	Beryllium alloy - production	Molding	303	0.0004 lb/ton alloy produced	Baghouse	113
Beryllium	7440417	4953	Municipal waste combustion	Mass burn, water wall facility	501001	0.091 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Beryllium	7440417	4953	Municipal waste combustion	Mass burn, refractory facility	501001	11.9 mg/kg controlled particulate emis.	Controlled by ESP, based on source test	118
Beryllium	7440417	4953	Municipal waste combustion	Refuse-derived fuel facility	501001	65 mg/kg controlled particulate emis.	Controlled by ESP, based on source test	118
Beryllium	7440417	4953	Municipal waste combustion	Modular facility	501001	0.036 mg/kg controlled particulate emis.	Controlled by ESP, based on source test	118
Beryllium	7440417	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<0.001 mg/kg dry sludge	One test, scrubber	101
Beryllium	7440417	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	<0.001 mg/kg dry sludge	Average of two tests, scrubber	101
Biphenyl	92524	226	Woven fabric finishing	Thermosol dyeing	330001	3.3 mg/kg fabric	Uncontrolled, average of two tests	52
Biphenyl	92524	226	Woven fabric finishing	Tenter frames - resin finish	330001	50 mg/kg fabric	Uncontrolled, test data	52

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Biphenyl	92524	226	Woven fabric finishing	Curing ovens - resin finish	330001	3.3 mg/kg fabric	Uncontrolled, average of three tests	52
Biphenyl	92524	2911	Petroleum refinery	Fugitives	306	0.006 lb/hr	Based on weighted emission stream content	92
Bis(2-ethylhexyl)phthalate	117817	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	1400 ug/kg dry sludge	Average of two tests, scrubber	101
Bis(2-ethylhexyl)phthalate	117817	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	266 ug/kg dry sludge	One test, scrubber	101
Boron	7440428		Wood combustion, Residential	Woodstove without baffle		0.73 g/Mg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Boron	7440428	226	Woven fabric finishing	Tenter frames - resin finishing	330001	0.075 mg/kg fabric	Uncontrolled, average of four tests	52
Boron	7440428	226	Woven fabric finishing	Thermosol dyeing	330001	0.077 mg/kg fabric	Uncontrolled, average of three tests	52
Boron	7440428	226	Woven fabric finishing	Heat setting	330001	0.0025 mg/kg fabric	Uncontrolled, based on test data	52
Boron	7440428	226	Woven fabric finishing	Curing oven - resin finish	330001	0.037 mg/kg fabric	Uncontrolled, average of three tests	52
Bromochlorobenzene	106598	226	Woven fabric finishing	Thermosol dyeing	330001	0.13 mg/kg fabric	Uncontrolled, average of two tests	52
Bromodichloromethane	75274	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	1.5 mg/kg dry sludge	One test, scrubber	101
Bromodinitroaniline	1817738	226	Woven fabric finishing	Thermosol dyeing	330001	1.2 mg/kg fabric	Uncontrolled, one test	52
Bromodinitrobenz.	584485	226	Woven fabric finishing	Thermosol dyeing	330001	3.3 mg/kg fabric	Uncontrolled, average of three tests	52
Bromodinitrobenzene	584485	226	Woven fabric finishing	Tenter frames - resin finish	330001	21 mg/kg fabric	Uncontrolled	52
Bromodinitrobenzene	584485	226	Woven fabric finishing	Curing ovens - resin finish	330001	5.7 mg/kg fabric	Uncontrolled, average of two tests	52
Butadiene, 1,3-	106990	2821	Polyvinyl chloride production	Suspension process, entire plant	301018	21 x 10E-5 g/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138
Butadiene, 1,3-	106990	2822	Styrene-butadiene rubber produc. by emulsion polymerization	Butadiene adsorption		0.1 g/kg SBR produced	Uncontrolled, based on industry estimates	81

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Butadiene, 1,3-	106990	2822	Neoprene manufacture	Dichlorobutene refining	301	1.56 kg/Mg neoprene produced	Calculated from national emissions and national capacity, mostly controlled	78
Butadiene, 1,3-	106990	2822	Neoprene manufacture	Dichlorobutene synthesis	301	0.3 kg/Mg neoprene produced	Calculated from national emissions and national capacity, mostly controlled	78
Butadiene, 1,3-	106990	2822	Neoprene manufacture	Equipment leaks	301	1.1 kg/Mg neoprene produced	Uncontrolled, calculated from national emissions and national capacity	78
Butadiene, 1,3-	106990	2822	Polybutadiene production	Process vents	301	0.026 kg/Mg PBD produced	Controlled (flare), calculated from average of four plants emissions and capacities	80
Butadiene, 1,3-	106990	2822	Polybutadiene production	Process vents	301	0.5 kg/Mg PBD produced	Uncontrolled, based on one plant's emissions and capacity	80
Butadiene, 1,3-	106990	2822	Polybutadiene production	Equipment leak	301	1.3 kg/Mg PBD produced	Uncontrolled, based on average of six plant's capacities and emissions	80
Butadiene, 1,3-	106990	2822	Polybutadiene production	Wastewater emissions	301	0.3 kg/Mg PBD produced	Uncontrolled, based on one plant's data	80
Butadiene, 1,3-	106990	2822	Styrene-butadiene rubber production	Process vents	301	0.96 kg/Mg SBR produced	Calculated from national emis. & national capacity, represents ave. of control. & uncontrol. sources	83
Butadiene, 1,3-	106990	2822	Styrene-butadiene rubber production	Equipment leaks	301	0.7 kg/Mg SBR produced	Calculated from national emissions and capacity, uncontrolled	83
Butadiene, 1,3-	106990	2822	Styrene-butadiene rubber production	Wastewater	301	0.04 kg/Mg SBR produced	Calculated from national emissions and capacity, uncontrolled	83
Butadiene, 1,3-	106990	2822	Neoprene manufacture	Jet vent scrubber	301026	0.047 g/kg neoprene produced	Engineering judgement	123
Butadiene, 1,3-	106990	2869	Butadiene production - recovery process	Process vents	301153	0.1 kg/Mg produced	Calculated from national emissions and capacities, average of uncontrolled and controlled plants	79
Butadiene, 1,3-	106990	2869	Butadiene production - recovery process	Equipment leaks	301153	1.2 kg/Mg produced	Calculated from national emissions and capacities, average of uncontrolled and controlled plants	79
Butadiene, 1,3-	106990	2869	Butadiene production - recovery process	Wastewater	301153	0.3 kg/Mg produced	Calculated from national emissions and capacities, average of	79

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Butadiene, 1,3-	106990	2869	Adiponitrile production	Process vents	30125415	0.05 kg/Mg ADM produced	Uncontrolled and controlled plants	82
Butadiene, 1,3-	106990	2869	Adiponitrile production	Equipment leaks	30125420	0.1 kg/Mg ADM produced	Controlled, based on emissions and capacities of two plants	82
Butadiene, 1,3-	106990	2869	Adiponitrile production	Wastewater and handling	30125420	0.009 kg/Mg ADM	Uncontrolled, based on emissions and capacities of two plants	82
Butadiene, 1,3-	106990	4953	Wastewater treatment	POTW	50100701	0.85 kg/Mg 1,3-butadiene in influent	Uncontrolled, based on emissions and capacities of two plants	108
Butadiene, 1,3-	106990	5541	Vehicle refueling	Vapor loss	40600301	1.785 g/gal of gas pumped	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	6
Butane	106978	2895	Carbon black manufacture - oil furnace	Main process vent	30100504	0.54 lb/ton carbon black produced	Listed as 4-butene/1,3-butadiene emission rate	97
Butenal	4170303	2865	Acetone/phenol manufacture from cumene	Cumene peroxidation vent	30102002	0.0055 g/kg phenol	Based on test data	125
Butenal	4170303	2865	Acetone/phenol manufacture from cumene	Cleavage section vents (combined)	30120211	8.5 x 10E-8 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Butyl alcohol, sec-	78022	2869	Glycerin production - chlorination process	Catalyst prep vent - allyl alcohol step	30117610	74,250 g/Mg glycerin produced	Controlled (unspecified), based on test data, 1977 data, average factors	150
Butyl benzoate		226	Woven fabric finishing	Curing ovens - resin finish	330001	600 mg/kg fabric	Uncontrolled, assumed 33% VOC is butyl alcohol, test data and calculations	52
Butylbenzene	104518	2865	Acetone/phenol manufacture from cumene	Cumene peroxidation vent	30102002	0.0022 g/kg phenol	Uncontrolled, average of three tests	125
Butyraldehyde	123728		Wood combustion, residential	Woodstove		0.47 g/kg wood burned	Controlled (not specified), based on sampling, 1977 data, average factors	58
Butyraldehyde	123728		Wood combustion, residential	Fireplace		0.2 g/kg wood burned	Uncontrolled, average emission factor based on source tests	58
Butyraldehyde	123728	2951	Asphaltic concrete production	Plant stack	305002	0.0024 lb/ton concrete	Uncontrolled, average emission factor based on source tests	97

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Cadmium	7440439		Coal combustion, residential	Bituminous coal-fired boilers		52.2 lb/10E12 Btu	cyclone/wet scrubber control Uncontrolled, highly variable, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion, residential	Subbituminous coal-fired boilers		29.8 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion, residential	Anthracite coal-fired boilers		13.0 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion, residential	Lignite coal-fired boilers		57.3 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion, residential	Boilers fired by coal from northern plains region		24.9 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion, residential	Boilers fired by coal from Appalachian region		8.4 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion, residential	Boilers fired by coal from interior region		375 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Cadmium	7440439		Wood combustion, residential	Woodstove without baffle		0.036 g/Mg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Cadmium	7440439		Vehicle tire wear	Tire		1.07 x10E-8 - 1.07 x10E-5 lb/mile driven	Based on three emission factors in the literature	41
Cadmium	7440439		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	15.7 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Cadmium	7440439		Oil combustion	Distillate oil-fired boilers, util/commerc/industr/residential	1	10.5 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Cadmium	7440439		Oil combustion	Distillate oil-fired boilers, util/commerc/industr/residential	1	7.45 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Cadmium	7440439		Oil combustion	Distillate oil-fired boilers, util/commerc/industr/residential	1	1.58 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Cadmium	7440439		Oil combustion	Distillate oil-fired boilers, util/commerc/industr/residential	1	0.63 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Cadmium	7440439		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	46.86 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Cadmium	7440439		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	9.90 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Cadmium	7440439		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	3.96 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	44.4 lb/10E12 Btu	Controlled, based on source tests	36
Cadmium	7440439		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	31.6 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	5.0-20 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Cadmium	7440439		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	0.35-1.6 lb/10E12 Btu	Controlled with scrubber, based on source tests	36
Cadmium	7440439		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	45-70 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	32-50 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	1.4 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Cadmium	7440439		Coal combustion	Bituminous coal-fired cyclone boilers, util/commerc/industr	1	28 lb/10E12 Btu	Uncontrolled, based on source test	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Cadmium	7440439		Coal combustion	Bituminous coal-fired cyclone boilers, util/commerc/industr	1	20 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Bituminous coal-fired cyclone boilers, util/commerc/industr	1	1.3 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Cadmium	7440439		Coal combustion	Bituminous coal-fired spreader stoker boilers, util/commerc/industr	1	21-43 lb/10E12 Btu	Uncontrolled, based on source tests	36
Cadmium	7440439		Coal combustion	Bituminous coal-fired spreader stoker boilers, util/commerc/industr	1	6.6-30 lb/10E12 Btu	Controlled with multiclone, based on measured and calculated emission factors	36
Cadmium	7440439		Coal combustion	Bituminous coal-fired spreader stoker boilers, util/commerc/industr	1	5.3-11 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Bituminous coal-fired overfeed stoker boilers, util/commerc/industr	1	43-82 lb/10E12 Btu	Uncontrolled, based on source tests	36
Cadmium	7440439		Coal combustion	Bituminous coal-fired overfeed stoker boilers, util/commerc/industr	1	30-58 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Bituminous coal-fired overfeed stoker boilers, util/commerc/industr	1	11-21 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	48.8 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	34.8 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	10 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	0.30-1.8 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Lignite coal-fired pulverized	1	49-77 lb/10E12 Btu	Uncontrolled, calculated based on	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Cadmium	7440439		Coal combustion	wet bottom boilers, util//commerc/industr	1	35-55 lb/10E12 Btu	engineering judgement	36
Cadmium	7440439		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util//commerc/industr	1	1.5 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util//commerc/industr	1	31 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Lignite coal-fired cyclone boilers, util//commerc/industr	1	22 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Lignite coal-fired cyclone boilers, util//commerc/industr	1	1.4 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Lignite coal-fired spreader stoker boilers, util//commerc/industr	1	23-47 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Lignite coal-fired spreader stoker boilers, util//commerc/industr	1	7.3-33 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Lignite coal-fired spreader stoker boilers, util//commerc/industr	1	5.8-12 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Lignite coal-fired overfeed stoker boilers, util//commerc/industr	1	47-90 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Lignite coal-fired overfeed stoker boilers, util//commerc/industr	1	33-66 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Lignite coal-fired overfeed stoker boilers, util//commerc/industr	1	12-23 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util//commerc/industr	1	11 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Cadmium	7440439		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	7.9 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	2.3 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	0.09-0.40 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	11-17 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	8.0-12 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	0.35 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	7.0 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	5.0 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	0.32 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Anthracite coal-fired spreader stoker boiler, util/commerc/industr	1	5.2-11 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Anthracite coal-fired spreader stoker boiler, util/commerc/industr	1	1.6-7.5 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Anthracite coal-fired spreader stoker boiler, util/commerc/industr	1	1.3-2.7 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Cadmium	7440439		Coal combustion	Anthracite coal-fired overfeed stoker boiler, util/commerc/industr	1	11-20 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Anthracite coal-fired overfeed stoker boiler, util/commerc/industr	1	7.5-14 lb/10E12 Btu	Controlled with multicore, calculated based on engineering judgement	36
Cadmium	7440439		Coal combustion	Anthracite coal-fired overfeed stoker boiler, util/commerc/industr	1	2.7-5.2 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Cadmium	7440439		Waste oil combustion	Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	0.003 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, variable	55
Cadmium	7440439	0711	Fertilizer application	Application process	302	6 x 10E-3 lb/ton fertilizer applied	Engineering estimate, mass balance	38
Cadmium	7440439	0711	Superphosphate fertilizer application	Application process	302	1 x 10E-4 g/kg fertilizer applied		38, 41
Cadmium	7440439	0711	Fungicides application	Application process	302	1 x 10E-5 lb/gal fungicide applied	Engineering estimate, mass balance	38
Cadmium	7440439	0711	Fungicides application	Application process	302	20 g/m ³ fungicide applied		41
Cadmium	7440439	226	Woven fabric finishing	Tenter frames - resin finishing	330001	0.019 mg/kg fabric	Uncontrolled, average of four tests	52
Cadmium	7440439	226	Woven fabric finishing	Thermosol dyeing	330001	0.0017 mg/kg fabric	Uncontrolled, average of three tests	52
Cadmium	7440439	226	Woven fabric finishing	Heat setting	330001	0.0046 mg/kg fabric	Uncontrolled, based on test data	52
Cadmium	7440439	226	Woven fabric finishing	Curing oven - resin finish	330001	0.029 mg/kg fabric	Uncontrolled, average of two tests	52
Cadmium	7440439	2816	Cadmium pigments manufacture	Total emissions	301035	15 lb/ton Cd charged	Engineering estimate, mass balance, controlled with baghouse	38
Cadmium	7440439	2869	Plastic stabilizers manufacture	Total emissions		6 lb/ton Cd charged	Engineering estimate, controlled with baghouse	38
Cadmium	7440439	3241	Cement manufacture - dry process	Kiln	305006	3 x 10E-4 lb/ton feed	Controlled with a baghouse or ESP, stack sampling	38
Cadmium	7440439	3241	Cement manufacture - dry process	Raw mill feed	305006	3.6 x 10E-7 lb/ton feed	Controlled with baghouse	38

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Cadmium	7440439	3241	Cement manufacture - dry process	Raw mill	305006	2.7 x 10E-7 lb/ton feed	Controlled with baghouse	38
Cadmium	7440439	3241	Cement manufacture - dry process	Raw mill air separator	305006	8.5 x 10E-7 lb/ton feed	Controlled with baghouse	38
Cadmium	7440439	3241	Cement manufacture - dry process	Finish mill feed	305006	1 x 10E-6 lb/ton feed	Controlled with baghouse	38
Cadmium	7440439	3241	Cement manufacture - dry process	Finish mill	305006	1 x 10E-7 lb/ton feed	Controlled with baghouse	38
Cadmium	7440439	3241	Cement manufacture - dry process	Finish mill air separator	305006	2.6 x 10E-6 lb/ton feed	Controlled with baghouse, stack sampling	38
Cadmium	7440439	3241	Cement manufacture - wet process	Kiln	305006	2 x 10E-5 lb/ton feed	Controlled with ESP	38
Cadmium	7440439	3241	Cement manufacture - wet process	Raw mill	305006	2 x 10E-5 lb/ton feed	Controlled with baghouse	38
Cadmium	7440439	3241	Cement manufacture - wet process	Clinker cooler	305006	1 x 10E-5 lb/ton feed	Controlled with ESP or baghouse	38
Cadmium	7440439	331	Steel mill	Open hearth furnace	303009	0.00014 kg/metric ton produced	Uncontrolled, calculated from data presented in the reference	45
Cadmium	7440439	331	Steel mill	Open hearth furnace	303009	2.2 x 10E-6 kg/metric ton produced	Controlled with ESP, calculated from data presented in the reference	45
Cadmium	7440439	332	Iron and steel foundry	Green sand shakeout	304	1.326 mg/ton metal cast	Uncontrolled, Cd dust less than 3 um size only	47
Cadmium	7440439	332	Secondary iron and steel production	Sinter windbox	304	2 x 10E-3 lb/ton feed	Uncontrolled	38
Cadmium	7440439	332	Secondary iron and steel production	Sinter windbox	304	9.5 x 10E-4 lb/ton feed	Controlled with rotoclone and ESP	38
Cadmium	7440439	332	Secondary iron and steel production	Open hearth	304	5.78 x 10E-3 lb/ton steel	Uncontrolled, stack sampling	38
Cadmium	7440439	332	Secondary iron and steel production	Open hearth	304	1.1 x 10E-4 lb/ton steel	Controlled with ESP, stack sampling	38
Cadmium	7440439	332	Secondary iron and steel production	Basic oxygen furnace	304	4.1 x 10E-5 lb/ton steel	Uncontrolled, based on Cd content	38

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Cadmium	7440439	332	production Secondary iron and steel production	Basic oxygen furnace	304	2.79 x 10E-5 lb/ton steel	in feed, fuel, or emissions Controlled with venturi scrubber or ESP	38
Cadmium	7440439	332	Secondary iron and steel production	Electric arc furnace	304	3.4 x 10E-3 lb/ton steel	Engineering estimate, stack test, concentration of Cd in fuel, feed, or emissions	38
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Raw material storage - uncontrolled	303030	0.744 g/Mg Zn produced	Derived from emission factors	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Raw material storage - baghouse	303030	0.012 g/Mg Zn produced	Derived from emission factors	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Raw material storage - dry scrubber	303030	0.080 g/Mg Zn equivalent produced	Derived from emission factors	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Zn melting furnace - baghouse	303030	<1 kg/Mg Zn produced	Derived from emission factors	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Zn tapping/casting	303030	<1 kg/Mg Zn equivalent produced	Uncontrolled, derived from emission factors	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Zn dust process	303030	<1 kg/Mg Zn produced	Controlled with baghouse, derived from emission factors	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Roadways	303030	0.245 g/Mg Zn produced	Controlled, derived from emission factors (n = 3)	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Leach residue dryer	303030	0.234 g/Mg Zn produced	Controlled with baghouse, derived from emission factors	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Calcine handling	303030	0.049 g/Mg Zn produced	Controlled with baghouse, derived from emission factors	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Zn metal powder process	303030	<1 kg/Mg Zn produced	Controlled with baghouse, derived from emission factors (n = 3)	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Gypsum storage	303030	<1 kg/Mg Zn produced	Uncontrolled, derived from emission factor	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Screening tower	303030	<1 kg/Mg Zn produced	Controlled with baghouse, derived from emission factor	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Electrolyte cooler	303030	<1 kg/Mg Zn produced	Controlled with demister, derived from emission factor	43

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Zinc ore dryer	303030	0.011 g/Mg Zn equivalent produced	Controlled with wet scrubber, derived from emission factor	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Zinc holding furnace	303030	<1 kg/Mg Zn equivalent produced	Controlled with baghouse, derived from emission factor	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Sinter machine	303030	10.18 g/Mg Zn equivalent produced	Controlled with baghouse, derived from emission factors (n = 2)	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Sinter sizing/crushing	303030	1.42 g/Mg Zn equivalent produced	Controlled with baghouse, derived from emission factor	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Zn furnace preheaters	303030	2.89 g/Mg Zn equivalent produced	Controlled with baghouse, derived from emission factor	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Refining column	303030	<1 kg/Mg Zn equivalent produced	Controlled with baghouse, derived from emission factors (n = 2)	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Nuisance dust collector	303030	<1 kg/Mg Zn equivalent produced	Controlled with baghouse, derived from emission factor	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Waelz kiln fugitives	303030	<1 kg/Mg ZnO produced	Controlled with baghouse, derived from emission factor	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Waelz kiln product	303030	0.033 g/Mg ZnO produced	Controlled with baghouse, derived from emission factor	43
Cadmium	7440439	333	Primary zinc/zinc oxide smelting	Fume kiln	303030	3.4 g/Mg ZnO produced	Controlled with baghouse, derived from emission factor	43
Cadmium	7440439	333	Primary zinc smelting	Coking	303030	2.24 lb/ton Zn thru	Engineering estimate	38
Cadmium	7440439	333	Primary zinc smelting	Sintering with cyclone	303030	6.32 lb/ton Zn thru	Stack sampling	38
Cadmium	7440439	333	Primary zinc smelting	Sintering with cyclone and ESP	303030	2.16 lb/ton Zn thru	Stack sampling	38
Cadmium	7440439	333	Primary zinc smelting	Horizontal retort	303030	6 x 10E-3 lb/ton Zn produced	Engineering estimate	38
Cadmium	7440439	333	Primary zinc smelting	Vertical retort	303030	6.5 x 10E-2 lb/ton Zn thru	Stack sampling	38
Cadmium	7440439	333	Primary zinc smelting	Electrothermic process	303030	1.2 x 10E-2 lb/ton Zn produced	Engineering estimate	38
Cadmium	7440439	333	Primary zinc production	Zinc smelter coker	303030	0.182 kg/metric ton	No controls, calculated from data presented in the reference	45
Cadmium	7440439	333	Primary zinc production	Zinc vertical retort	303030	0.00134 kg/metric ton produced	No controls, calculated from data presented in the reference	45

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Cadmium	7440439	333	Primary zinc production	Zinc sinter plant	303030	1.66 kg/metric ton produced	Controlled with cyclone, calculated from data presented in the reference	45
Cadmium	7440439	333	Primary zinc production	Zinc sinter plant	303030	0.834 kg/metric ton produced	Controlled with cyclone and ESP, calculated from data presented in the reference	45
Cadmium	7440439	3332	Primary lead smelting	Sintering (updraft)	303010	0.639 kg/Mg Pb produced	Uncontrolled, derived from one emission factor	46, 97
Cadmium	7440439	3332	Primary lead smelting	Main stack (exhaust from acid plant and sinter baghouse)	303010	0.0305 kg/Mg Pb produced	Derived from one emission estimate	44, 46, 97
Cadmium	7440439	3332	Primary lead smelting	Baghouse for sinter crushing and returns	303010	0.102 g/Mg Pb produced	Derived from one emission estimate	44, 46, 97
Cadmium	7440439	3332	Primary lead smelting	Scrubber for sinter prep and returns	303010	0.038-0.095 g/Mg Pb produced	Derived from one emission estimate	44, 46, 97
Cadmium	7440439	3332	Primary lead smelting	Scrubber for blast furnace charge prep	303010	0.010-0.035 g/Mg Pb produced	Derived from one emission estimate	44, 46, 97
Cadmium	7440439	3332	Primary lead smelting	Blast furnace	303010	5.25 x 10E-3 lb/ton Pb	Controlled with a baghouse, stack sampling and engineering estimate	38
Cadmium	7440439	3332	Primary lead smelting	Blast furnace	30301002	23.47 kg/Mg Pb produced	Uncontrolled, derived from one emission factor	46, 97
Cadmium	7440439	3332	Primary lead smelting	Gross reverberatory furnace	30301003	1.3 kg/Mg Pb produced	Uncontrolled, derived from one emission factor	46, 97
Cadmium	7440439	3332	Primary lead smelting	Ore crushing	30301004	0.3775 g/Mg Pb produced	Uncontrolled, derived from one emission factor	46, 97
Cadmium	7440439	3339	Primary cadmium smelting	Cadmium melting furnace	303	0.13 kg/Mg Cd produced	Uncontrolled, derived from one emission factor	43, 44, 46
Cadmium	7440439	3339	Primary cadmium smelting	Cadmium holding furnace	303	0.13 kg/Mg Cd produced	Uncontrolled, derived from one emission factor	43, 44, 46
Cadmium	7440439	3339	Primary cadmium smelting	Cadmium casting furnace	303	<1 kg/Mg Cd produced	Uncontrolled, derived from one emission factor	43, 44, 46
Cadmium	7440439	3339	Primary cadmium smelting	Cadmium oxide furnace	303	2.46 kg/Mg Cd produced	Controlled with baghouse, derived from emission factor	43, 44, 46
Cadmium	7440439	3339	Primary cadmium smelting	Cadmium melting furnace	303	<1 kg/Mg Cd produced	Controlled with baghouse, derived from emission factor	43, 44, 46

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Cadmium	7440439	3339	Primary cadmium smelting	Cadmium melting/casting furnace	303	<1 kg/Mg Cd produced	from emission factor	43, 44, 46
Cadmium	7440439	3339	Primary cadmium smelting	Cadmium tapping/casting	303	<1 kg/Mg Cd produced	Controlled with wet scrubber, derived from emission factor	43, 44, 46
Cadmium	7440439	3339	Primary cadmium smelting	Dust charging	303	0.16 kg/Mg Cd produced	Uncontrolled, derived from emission factor	43, 44, 46
Cadmium	7440439	3339	Primary cadmium smelting	Premelt department	303	1.33 kg/Mg Cd produced	Uncontrolled, derived from emission factor	43, 44, 46
Cadmium	7440439	3339	Primary cadmium smelting	Casting/holding furnace	303	3.77 g/Mg Cd produced	Uncontrolled, derived from emission factor	43, 44, 46
Cadmium	7440439	3339	Primary cadmium smelting	Purification sponge tank	303	3.77 g/Mg Cd produced	Uncontrolled, derived from one emission factor	43, 44, 46
Cadmium	7440439	3339	Primary cadmium smelting	Purification department stack	303	7.53 g/Mg Cd produced	Uncontrolled, derived from one emission factor	43, 44, 46
Cadmium	7440439	3339	Primary cadmium smelting	Solutions heating tank	303	0.382 kg/Mg Cd produced	Uncontrolled, derived from one emission factor	43, 44, 46
Cadmium	7440439	3339	Primary cadmium smelting	Cd baghouse	303	0.018 kg/Mg Cd produced	Derived from emission factors (n = 2)	43, 44, 46
Cadmium	7440439	3339	Primary cadmium smelting	Cd metal powder packaging	303	0.030 kg/Mg Cd produced	Controlled with baghouse, derived from one emission factor	43, 44, 46
Cadmium	7440439	3339	Primary cadmium smelting	Fugitives packing dust collector	303	0.179 kg/Mg Cd produced	Controlled, derived from two emission factors	43, 44, 46
Cadmium	7440439	3339	Primary cadmium smelting	Gypsum storage piles	303	<1 kg/Mg Cd produced	Controlled with dry scrubber, derived from one emission factor	43, 44, 46
Cadmium	7440439	3341	Secondary copper smelting	Cupola	304002	0.015-0.056 kg/Mg Cu produced	Controlled with baghouse, applicable only to facilities whose raw materials contain cadmium	44
Cadmium	7440439	3341	Secondary copper smelting	Top-blown rotary converter	304002	0.54-1.58 g/Mg Cu produced	Controlled with baghouse, applicable only to facilities whose raw materials contain cadmium	44
Cadmium	7440439	3341	Secondary copper smelting	Total emissions	304002	2 g/kg of copper scrap	Control status unknown	41

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Cadmium	7440439	3341	Secondary lead smelting	Reverberatory furnace	30400402	1.6 x 10E-6 lb/ton Pb	Controlled with cyclone + baghouse stack sampling + engineering estimate	38
Cadmium	7440439	3341	Secondary lead smelting	Reverberatory furnace	30400402	5 x 10E-7 lb/ton Pb	Controlled with three cyclones and baghouse	38
Cadmium	7440439	3341	Secondary lead smelting	Blast furnace	30400403	2 x 10E-6 lb/ton Pb	Controlled with three cyclones + baghouse stack sampling + engineering estimate	38
Cadmium	7440439	3341	Secondary zinc production	Total emissions	304008	1 x 10E-2 lb/ton Zn produced	Uncontrolled	38
Cadmium	7440439	3471	Electroplating	Plating tank		5.0 x 10E-5 g/hr/amp	Uncontrolled	147
Cadmium	7440439	3471	Electroplating	Entire process		0.00005 g/hr/amp	Uncontrolled, measured	92
Cadmium	7440439	3691	Nickel-cadmium battery manufacture	Total emissions	304005	2 lb/ton Cd charged	Survey of companies	38
Cadmium	7440439	4953	Municipal waste combustion	Mass burn, water wall facility	501001	686 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Cadmium	7440439	4953	Municipal waste combustion	Mass burn, refractory facility	501001	1228 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Cadmium	7440439	4953	Municipal waste combustion	Refuse-derived fuel facility	501001	106 mg/kg controlled particulate emis.	Controlled by ESP, based on source test	118
Cadmium	7440439	4953	Municipal waste combustion	Modular facility	501001	3310 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Cadmium	7440439	4953	Municipal waste combustion	Incinerator stack	501001	0.004 kg/kg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, based on material balance for model incinerator	98
Cadmium	7440439	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	0.74 mg/kg dry sludge	Average of three tests, scrubber	101
Cadmium	7440439	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	9.9 mg/kg dry sludge	Average of 13 tests, scrubber, range 0.26-63	101
Cadmium	7440439	806	Hospital waste incineration	Incinerator	315020	35.2 x 10-4 lb/ton feed	Uncontrolled, test data	9
Caprolactam	105602	2869	Ammonium sulfate production - caprolactam by-product	Rotary dryer	30121009	1.1 kg/hr	Based on test data	129
Carbon disulfide	75150	2824	Synthetic fibers - viscose rayon	General emissions	30102501	55 lb/ton fibers	Uncontrolled, low quality factor	97

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Carbon disulfide	75150	2869	CCl ₄ production - CS ₂ chlorination	Separation	30130201	2 g/kg produced	Control uncertain, based on tests and mass balance	95
Carbon disulfide	75150	2895	Carbon black manufacture - oil furnace	Main process vent	30100504	60 lb/ton carbon black produced	Based on test data	97
Carbon tetrachloride	56235		Waste oil combustion	Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	0.030 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, assumes 97% DRE	55
Carbon tetrachloride	56235	2812	Chlorine production	Absorber process vent tail gas scrubbing		550 kg/Gg chlorine production capacity	Uncontrolled, not all plants use CCl ₄	134
Carbon tetrachloride	56235	2812	Chlorine production	Fugitives/tail gas scrubbing		38 kg/Mg chlorine production capacity	Uncontrolled, calculated by total emission/total capacity of plants that use CCl ₄	134
Carbon tetrachloride	56235	2812	Chlorine production	Nitrogen trichloride diluent		1.6 kg/Mg CCl ₄ used	Uncontrolled, not all plants use CCl ₄ in this way	134
Carbon tetrachloride	56235	2822	Hypalon [®] production	All sources		220 Mg/yr	One plant only in U.S.	134
Carbon tetrachloride	56235	2834	Pharmaceutical manufacture	Plant-wide	301060	110 kg/Mg CCl ₄ used	Industry-wide mass balance	163
Carbon tetrachloride	56235	2869	Dry chlorinated paraffin production	All sources		9.4 Mg/yr	Only one plant in U.S.	134
Carbon tetrachloride	56235	2869	Ethylene dichloride production - balanced process	Column vents	301125	0.14 kg/Mg EDC produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	Ethylene dichloride production - balanced process	Column vents	301125	<2.8 x 10E-3 kg/Mg EDC produced	Thermal oxidizer	163
Carbon tetrachloride	56235	2869	Ethylene dichloride production - balanced process	Oxychlorination vent - air process	30112501	1.2 kg/Mg EDC produced	Uncontrolled, high value of range (0.29-1.2)	163
Carbon tetrachloride	56235	2869	Ethylene dichloride production - balanced process	Oxychlorination vent - air process	30112501	2.4 x 10E-2 kg/Mg EDC produced	Thermal oxidizer, high value of range (5.8 x 10E-3 - 2.4 x 10E-2)	163
Carbon tetrachloride	56235	2869	Ethylene dichloride production - balanced process	Oxychlorination vent - oxygen process	30112501	0.18 kg/Mg EDC produced	Uncontrolled, high value of range (0.044-0.18)	163
Carbon tetrachloride	56235	2869	Ethylene dichloride production - balanced process	Oxychlorination vent - oxygen process	30112501	3.6 x 10E-3 kg/Mg EDC produced	Thermal oxidizer, high value of range (8.8 x 10E-4 - 3.6 x 10E-3)	163
Carbon tetrachloride	56235	2869	Ethylene dichloride production -	Absorption	30112501	0.003 g/kg produced	Control unclear, based on mass balance and testing	95

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Carbon tetrachloride	56235	2869	oxyhydrochlorination Ethylene dichloride production - oxyhydrochlorination	Separation	30112501	0.094 g/kg produced	Control unclear, based on mass balance and testing	95
Carbon tetrachloride	56235	2869	Ethylene dichloride production - balanced process	Liquid waste storage	30112509	0.0051 kg/Mg EDC produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	Ethylene dichloride production - balanced process	Liquid waste storage	30112509	7.7 x 10E-4 kg/Mg EDC produced	Refrigerated condenser	163
Carbon tetrachloride	56235	2869	CCl4 production - methane chlorination	Distillation area emergency inert gas vent	30112510	0.052 kg/Mg CCl4 produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl4 production - methane chlorination	Recycled methane inert gas purge vent	30112511	<0.042 kg/Mg CCl4 produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	Chloromethane production - methane chlorination	Recycled methane inert gas purge vent	30112511	<0.0042 kg/Mg total chlorometh. capac.	Uncontrolled, based on information supplied by one producer	71
Carbon tetrachloride	56235	2869	CCl4 production - methane chlorination	Crude tank - storage	30112514	0.057 kg/Mg CCl4 produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl4 production - methane chlorination	Crude tank - storage	30112514	0.0046 kg/Mg CCl4 produced	Refrigerated condenser	163
Carbon tetrachloride	56235	2869	CCl4 production - methane chlorination	Day tanks	30112514	0.36 kg/Mg CCl4 produced	Uncontrolled, value is for two tanks	163
Carbon tetrachloride	56235	2869	CCl4 production - methane chlorination	Day tanks	30112514	0.025 kg/Mg CCl4 produced	Refrigerated condenser, value is for two tanks	163
Carbon tetrachloride	56235	2869	CCl4 production - methane chlorination	Product tank	30112514	0.64 kg/Mg CCl4 produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl4 production - methane chlorination	Product tank	30112514	0.096 kg/Mg CCl4 produced	Refrigerated condenser	163
Carbon tetrachloride	56235	2869	CCl4 production - methane chlorination	Loading tank cars, barges	30112514	0.24 kg/Mg CCl4 produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl4 production - methane chlorination	Loading tank cars, barges	30112514	0.036 kg/Mg CCl4 produced	Refrigerated condenser	163
Carbon tetrachloride	56235	2869	CCl4 production - methane chlorination	Process waste liquids - handling and disposal	30112514	0.018 kg/Mg CCl4 produced	Uncontrolled	163

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Carbon tetrachloride	56235	2869	CCl ₄ production - methane chlorination	Process fugitives	30112514	2.56 kg/hr	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl ₄ production - methane chlorination	Process fugitives	30112514	1.6 kg/hr	Quarterly 1/M pumps and valves	163
Carbon tetrachloride	56235	2869	CCl ₄ production - methane chlorination	Process fugitives	30112514	1.1 kg/hr	Monthly 1/M pumps and valves	163
Carbon tetrachloride	56235	2869	CCl ₄ production - methane chlorination	Process fugitives	30112514	0.74 kg/hr	Monthly 1/M valves, double mechanical seals on pumps, rupture disks on relief valves	163
Carbon tetrachloride	56235	2869	Perchloroethylene production - EDC chlorination	Drying column	30112520	0.063 kg/Mg perchloroethylene produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	Perchloroethylene production - EDC chlorination	Drying column	30112520	0.0050 kg/Mg perchloroethylene produced	Condenser	163
Carbon tetrachloride	56235	2869	Perchloroethylene production - EDC chlorination	Chlorination of ethylene dichloride proc/neutralization & drying area vent	30112520	0.064 g/kg of perchloroethylene produced	Uncontrolled, based on data from one producer	1
Carbon tetrachloride	56235	2869	Perchloroethylene production - EDC chlorination	Distillation column	30112521	0.027 kg/Mg perchloroethylene produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	Perchloroethylene production - EDC chlorination	Chlorination of ethylene dichloride proc/distillation vent	30112521	0.026 g/kg of perchloroethylene produced	Uncontrolled, based on data from one producer	1
Carbon tetrachloride	56235	2869	Perchloroethylene production - EDC chlorination	Neutralization	30112522	0.016 kg/Mg perchloroethylene produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	Perchloroethylene production - EDC chlorination	Process fugitives	30112524	2.8 kg/hr	Uncontrolled	163
Carbon tetrachloride	56235	2869	Perchloroethylene production - EDC chlorination	Storage - light ends	30112524	0.11 kg/Mg perchloroethylene produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	Perchloroethylene production - EDC chlorination	Storage - light ends	30112524	0.0012 kg/Mg perchloroethylene produced	Condenser	163
Carbon tetrachloride	56235	2869	Perchloroethylene production - EDC chlorination	Light ends/heavy ends mix tank	30112524	0.11 kg/Mg perchloroethylene produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	Perchloroethylene production - EDC chlorination	Light ends/heavy ends mix tank	30112524	0.022 kg/Mg perchloroethylene produced	Condenser	163

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Carbon tetrachloride	56235	2869	Trichloroethylene production by oxyhydrochlorination process	Absorption	30112530	13.0 g/kg produced	Control unclear, based on mass balance and testing	95
Carbon tetrachloride	56235	2869	Fluorocarbon 11/12 production	Reactor vents	30112701	0.042 kg/Mg FC 11/12 produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	Fluorocarbon 11/12 production	Distillation column	30112702	0.023 kg/Mg FC 11/12 produced	Refrigerated condenser and CCl4 scrubber	163
Carbon tetrachloride	56235	2869	Fluorocarbon 11/12 production	Storage	30112780	0.74 kg/Mg FC 11/12 produced	Uncontrolled, high value of range (0.19-0.74)	163
Carbon tetrachloride	56235	2869	Fluorocarbon 11/12 production	Storage	30112780	0.11 kg/Mg FC 11/12 produced	Refrigerated condenser, high value of range (0.029-0.11)	163
Carbon tetrachloride	56235	2869	CCl4 production - CS2 chlorination	Chlorinator	30130201	116 kg/Mg CCl4 produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl4 production - CS2 chlorination	Chlorinator	30130201	5.8 kg/Mg CCl4 produced	Refrigerated condenser	163
Carbon tetrachloride	56235	2869	CCl4 production - hydrocarbon chlorinolysis	Distillation column	30130202	0.008 kg/Mg CCl4 produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl4 production - hydrocarbon chlorinolysis	Process fugitives	30130280	1.5 kg/hr	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl4 production - hydrocarbon chlorinolysis	Process fugitives	30130280	0.54 kg/hr	Monthly 1/M pumps and valves	163
Carbon tetrachloride	56235	2869	CCl4 production - hydrocarbon chlorinolysis	Process fugitives	30130280	0.78 kg/hr	Quarterly 1/M pumps and valves	163
Carbon tetrachloride	56235	2869	CCl4 production - hydrocarbon chlorinolysis	Process fugitives	30130280	0.41 kg/hr	Monthly 1/M valves, double mechanical seals on pumps, rupture disks on relief valves	163
Carbon tetrachloride	56235	2869	CCl4 production - hydrocarbon chlorinolysis	Crude tank (storage)	30130280	0.098 kg/Mg CCl4 produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl4 production - hydrocarbon chlorinolysis	Crude tank (storage)	30130280	0.013 kg/Mg CCl4 produced	Refrigerated condenser	163
Carbon tetrachloride	56235	2869	CCl4 production - hydrocarbon chlorinolysis	Day tanks	30130280	0.45 kg/Mg CCl4 produced	Uncontrolled, value for two tanks	163
Carbon tetrachloride	56235	2869	CCl4 production - hydrocarbon chlorinolysis	Day tanks	30130280	0.032 kg/Mg CCl4 produced	Refrigerated condenser, value for	163

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Carbon tetrachloride	56235	2869	chlorinolysis CCl ₄ production - hydrocarbon chlorinolysis	Carbon tetrachloride tank	30130280	0.58 kg/Mg CCl ₄ produced	two tanks Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl ₄ production - hydrocarbon chlorinolysis	Carbon tetrachloride tank	30130280	0.087 kg/Mg CCl ₄ produced	Refrigerated condenser	163
Carbon tetrachloride	56235	2869	CCl ₄ production - hydrocarbon chlorinolysis	Loading barges, tanks	30130280	0.24 kg/Mg CCl ₄ produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl ₄ production - hydrocarbon chlorinolysis	Loading barges, tanks	30130280	0.036 kg/Mg CCl ₄ produced	Refrigerated condensers	163
Carbon tetrachloride	56235	2869	CCl ₄ production - hydrocarbon chlorinolysis	Hex waste handling, disposal	30130280	0.0046 kg/Mg CCl ₄ produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl ₄ production - hydrocarbon chlorinolysis	Hex waste handling, disposal	30130280	4.6 x 10 ⁻⁵ kg/Mg CCl ₄ produced	Vapor balance and refrigerated condenser	163
Carbon tetrachloride	56235	2869	CCl ₄ production - hydrocarbon chlorinolysis	Waste caustic	30130280	0.0029 kg/Mg CCl ₄ produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl ₄ production - hydrocarbon chlorinolysis	Waste caustic	30130280	1.2 x 10 ⁻⁴ kg/Mg CCl ₄ produced	Steam stripper	163
Carbon tetrachloride	56235	2869	CCl ₄ production - CS ₂ chlorination	Storage	30130280	0.76 kg/Mg CCl ₄ produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl ₄ production - CS ₂ chlorination	Storage	30130280	0.11 kg/Mg CCl ₄ produced	Refrigerated condenser	163
Carbon tetrachloride	56235	2869	CCl ₄ production - CS ₂ chlorination	Loading tank cars, trucks, etc.	30130280	0.24 kg/Mg CCl ₄ produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl ₄ production - CS ₂ chlorination	Loading tank cars, trucks, etc.	30130280	0.036 kg/Mg CCl ₄ produced	Refrigerated condenser	163
Carbon tetrachloride	56235	2869	CCl ₄ production - CS ₂ chlorination	Process fugitives	30130280	0.60 kg/Mg CCl ₄ produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl ₄ production - CS ₂ chlorination	Process fugitives	30130280	0.32 kg/Mg CCl ₄ produced	Quarterly 1/M pumps and valves	163
Carbon tetrachloride	56235	2869	CCl ₄ production - CS ₂ chlorination	Process fugitives	30130280	0.22 kg/Mg CCl ₄ produced	Monthly 1/M pumps and valves	163
Carbon tetrachloride	56235	2869	CCl ₄ production - CS ₂ chlorination	Process fugitives	30130280	0.14 kg/Mg CCl ₄ produced	Monthly 1/M valves, double	163

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Carbon tetrachloride	56235	2869	chlorination - CCl ₄ production - methanol/methyl chloride process	Crude tank storage	30130280	0.040 kg/Mg CCl ₄ produced	mechanical seals on pumps, rupture disks on relief valves Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl ₄ production - methanol/methyl chloride process	Crude tank storage	30130280	0.0012 kg/Mg CCl ₄ produced	Refrigerated condenser	163
Carbon tetrachloride	56235	2869	CCl ₄ production - methanol/methyl chloride process	Surge tank	30130280	0.057 kg/Mg CCl ₄ produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl ₄ production - methanol/methyl chloride process	Surge tank	30130280	0.0023 kg/Mg CCl ₄ produced	Refrigerated condenser	163
Carbon tetrachloride	56235	2869	CCl ₄ production - methanol/methyl chloride process	CCl ₄ /heavies tank	30130280	1.39 kg/Mg CCl ₄ produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl ₄ production - methanol/methyl chloride process	CCl ₄ /heavies tank	30130280	0.21 kg/Mg CCl ₄ produced	Refrigerated condenser	163
Carbon tetrachloride	56235	2869	CCl ₄ production - methanol/methyl chloride process	Loading tank cars, barges, trucks, etc.	30130280	0.52 kg/Mg CCl ₄ produced	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl ₄ production - methanol/methyl chloride process	Loading tank cars, barges, trucks, etc.	30130280	0.078 kg/Mg CCl ₄ produced	Refrigerated condenser	163
Carbon tetrachloride	56235	2869	CCl ₄ production - methanol/methyl chloride chlorination	Process fugitives	30130280	0.48 kg/hr	Uncontrolled	163
Carbon tetrachloride	56235	2869	CCl ₄ production - methanol/methyl chloride chlorination	Process fugitives	30130280	0.28 kg/hr	Quarterly 1/M pumps and valves	163
Carbon tetrachloride	56235	2869	CCl ₄ production - methanol/methyl chloride chlorination	Process fugitives	30130280	0.19 kg/hr	Monthly 1/M pumps and valves	163
Carbon tetrachloride	56235	2869	CCl ₄ production -	Process fugitives	30130280	0.091 kg/hr	Monthly 1/M valves, double	163

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Carbon tetrachloride	56235	2879	methanol/methyl chloride chlorination	All sources		0.28 Mg/Mg CCl ₄ used	mechanical seals on pumps, rupture disks on relief valves	134
Carbon tetrachloride	56235	2899	Pesticide manufacturing	All sources		68 Mg/yr	CCl ₄ not used in all pesticide production	134
Carbon tetrachloride	56235	2899	Symmetrical tetrachloropyridine production	All sources			Two plants in U.S., some control	134
Carbon tetrachloride	56235	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	0.05 mg/kg dry sludge	Average of five tests, scrubber	101
Carbon tetrachloride	56235	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	0.01 mg/kg dry sludge	One test, scrubber	101
Carbon tetrachloride	56235	4953	Sewage sludge incineration	Fluidized-bed furnace	50100701	0.71 Mg/Mg of carbon tet. in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Carbon tetrachloride	56235	4953	Wastewater treatment	POTW				
Carbon tetrachloride	56235	806	Hospital waste incineration	Incinerator	315020	0.000099 lb/ton feed	Uncontrolled, test data	9
Carbon tetrachloride	56235	806	Hospital waste incineration	Incinerator				
Carbonyl sulfide	463581	2895	Carbon black manufacture - oil furnace	Main process vent	30100504	20 lb/ton carbon black produced	Based on test data	97
Chlordane	57749	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	<340 ug/kg dry sludge	One test, scrubber	101
Chlordane	57749	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<563 ug/kg dry sludge	One test, scrubber	101
Chlorine	7782505	2611	Pulp and paper bleaching	Entire process		1 lb/ton pulp bleached		133
Chlorine	7782505	2611	Pulp and paper bleaching	Chlorine dioxide generation		0.4 lb/ton pulp bleached		133
Chlorine	7782505	2812	Chlorine production	Liquefaction blow gases	301008	2,000-16,000 lb/100 tons Cl liquefied	No control	25
Chlorine	7782505	2812	Chlorine production	Liquefaction blow gases	301008	25-1090 lb/100 tons Cl liquefied	Controlled with water absorber	25
Chlorine	7782505	2812	Chlorine production	Liquefaction blow gases	301008	1 lb/100 tons Cl liquefied	Controlled with caustic or lime scrubber	25
Chlorine	7782505	2812	Chlorine production	Cell gas condensate	301008	400-1200 lb/100 tons Cl liquefied	No control	25
Chlorine	7782505	2812	Chlor-alkali plant	Diaphragm cell	30100801	10,000 lb/100 tons produced	Range of 2,000-10,000 lb/ton	97
Chlorine	7782505	2812	Chlor-alkali plant	Mercury cell	30100802	16,000 lb/100 tons produced	Range of 4,000-16,000 lb/ton	97
Chlorine	7782505	2812	Chlorine production	Tank car loading venting	30100803	0-100.8 lb/100 tons Cl	Controlled with scrubber	25

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chlorine	7782505	2812	Chlor-alkali plant	Loading chlorine/tank car vents	30100803	450 lb/100 tons	Engineering judgement and test data	97
Chlorine	7782505	2812	Chlor-alkali plant	Loading chlorine/storage tank vents	30100804	1200 lb/100 tons	Engineering judgement and test data	97
Chlorine	7782505	2812	Chlor-alkali plant	Air blowing mercury cell brine	30100804	500 lb/100 tons	Engineering judgement and test data	97
Chlorine	7782505	2812	Chlorine production	Air blowing of brine	30100805	56 lb/100 tons Cl produced	Mercury-cell plants, no control	25
Chlorine	7782505	2869	Ethyl chloride production by hydrochlorination	Separation	301	0.0005 g/kg produced	Control uncertain, based on mass balance and tests	95
Chlorine	7782505	2869	Ethylene dichloride production - oxyhydrochlorination	Absorption	30112501	0.0019 g/kg produced	Control unclear, based on mass balance and testing	95
Chlorine	7782505	2869	Ethylene dichloride production - oxyhydrochlorination	Separation	30112501	0.005 g/kg produced	Control unclear, based on mass balance and testing	95
Chlorine	7782505	2869	CCl ₄ production - CS ₂ chlorination	Separation	30130201	0.00015 g/kg produced	Control uncertain, based on tests and mass balance	95
Chlorine	7782505	2869	CCl ₄ and perchloroethylene production - propane chlorination	Drying	30130201	10.00 g/kg produced	Control uncertain, based on tests and mass balance	95
Chlorine	7782505	2869	Epichlorohydrin production by hydrochlorination	Absorption	30130501	0.0005 g/kg produced	Control unclear, based on mass balance and testing	95
Chlorine	7782505	2869	Epichlorohydrin production by hydrochlorination	Separation	30130501	0.0005 g/kg produced	Control unclear, based on mass balance and testing	95
Chlorine	7782505	2875	Fertilizer mixing	Ammoniation-granulation proc.	30104501	0.0132 lb/ton fertilizer	Calculated from information in reference	133
Chlorine	7782505	4911	Coal combustion	Boiler	1	1.22 kg/ton coal burned		133
Chloro-m-cresol, p	119335	4953	Sludge incineration	Multiple hearth furnace	50100506	<28 ug/kg dry sludge	One test, scrubber	101
Chloro-m-cresol, p	119335	4953	Sludge incineration	Fluidized-bed furnace	50100506	<47 ug/kg dry sludge	One test, scrubber	101
Chlorobenzene	108907	2865	Chlorobenzene production	Process emissions	30130135	2.06 kg/Mg chlorobenzene produced	Estimates based on plant visits, no specifics on control, likely to be high value	48

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chlorobenzene	108907	2865	Chlorobenzene production	Storage emissions	30130135	0.45 kg/Mg chlorobenzene produced	Estimates based on plant visits, no specifics on control, likely to be high value	48
Chlorobenzene	108907	2865	Chlorobenzene production	Fugitive emissions	30130180	0.49 kg/Mg chlorobenzene produced	Estimates based on plant visits, no specifics on control, likely to be high value	48
Chlorobenzene	108907	2869	Mono-, and dichlorobenzene production, direct chlorination	Absorption	3012535	0.03 g/kg produced	Control uncertain, based on tests and mass balance	95
Chlorobenzene	108907	4741	Rail tank car cleaning	Entire process		0.0346 lb/tank car	Emission measurement	97
Chlorobenzene	108907	4953	Sewage sludge incineration	Multiple hearth incinerator	50100506	1.2 mg/kg dry sludge	Average of five tests, scrubber	101
Chlorobenzene	108907	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	0.01 mg/kg dry sludge	One test, scrubber	101
Chlorobenzene	108907	4953	Wastewater treatment	POTW	50100701	0.52 Mg/Mg of chlorobenzene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Chlorobenzenes		4953	Municipal waste combustion	Existing mass burn heat recovery facility	501001	0.32 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Chlorobenzenes		4953	Municipal waste combustion	Projected or state-of-the-art mass burn heat recovery facility	501001	0.0089 g/Mg of waste combusted	Controlled by ESP, based on source test	118
Chlorobenzenes		4953	Municipal waste combustion	Mass burn nonheat recovery facility	501001	0.32 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Chlorobenzenes		4953	Municipal waste combustion	Refuse-derived fuel facility	501001	0.14 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Chlorobenzenes		4953	Municipal waste combustion	Modular facility	501001	0.018 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Chlorobenzenes		4953	Municipal waste combustion	Existing mass burn heat recovery facility	501001	0.02 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Chlorobenzenes		4953	Municipal waste combustion	Projected or state-of-the-art mass burn heat recovery facility	501001	0.0006 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chlorobenzenes		4953	Municipal waste combustion	Mass burn nonheat recovery facility	501001	0.02 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Chlorobenzenes		4953	Municipal waste combustion	Refuse-derived fuel facility	501001	0.009 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Chlorobenzenes		4953	Municipal waste combustion	Modular facility	501001	0.001 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Chloroform	67663		Landfill	Landfill gas	5	0.61 x 10E-6 volume/volume landfill gas	Average of highest values for 20 landfills in S. California	93
Chloroform	67663	2611	Secondary fiber mills	Deink - fine papers	307	0.36 kg/Mg total products	During wastewater treatment	164
Chloroform	67663	2611	Secondary fiber mills	Deink - fine papers	307	0.013 kg/Mg total products	After wastewater treatment	164
Chloroform	67663	2611	Secondary fiber mills	Deink - tissue papers	307	0.16 kg/Mg total products	During wastewater treatment	164
Chloroform	67663	2611	Secondary fiber mills	Deink - tissue papers	307	0.0067 kg/Mg total products	After wastewater treatment	164
Chloroform	67663	2621	Secondary fiber mills	Deink - tissue papers	307	0.12 kg/Mg total products	During wastewater treatment	164
Chloroform	67663	2621	Pulp/paper mill - integrated	Dissolving Kraft pulp	307	0.013 kg/Mg total products	After wastewater treatment	164
Chloroform	67663	2621	Pulp/paper mill - integrated	Dissolving Kraft pulp	307	0.22 kg/Mg total products	During wastewater treatment	164
Chloroform	67663	2621	Pulp/paper mill - integrated	Market bleached Kraft pulp	307	0.0019 kg/Mg total products	After wastewater treatment	164
Chloroform	67663	2621	Pulp/paper mill - integrated	Market bleached Kraft pulp	307	0.23 kg/Mg total products	During wastewater treatment	164
Chloroform	67663	2621	Pulp/paper mill - integrated	Bleached Kraft paperboard, coarse papers	307	0.00090 kg/Mg total products	After wastewater treatment	164
Chloroform	67663	2621	Pulp/paper mill - integrated	Bleached Kraft paperboard, coarse papers	307	0.13 kg/Mg total products	During wastewater treatment	164
Chloroform	67663	2621	Pulp/paper mill - integrated	Soda and Kraft fine bleached papers	307	0.0059 kg/Mg total products	After wastewater treatment	164
Chloroform	67663	2621	Pulp/paper mill - integrated	Soda and Kraft fine bleached papers	307	0.069 kg/Mg total products	During wastewater treatment	164
Chloroform	67663	2621	Pulp/paper mill - integrated	Dissolving sulfite pulp	307	0.0035 kg/Mg total products	After wastewater treatment	164
Chloroform	67663	2621	Pulp/paper mill - integrated	Dissolving sulfite pulp	307	0.38 kg/Mg total products	During wastewater treatment	164

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chloroform	67663	2621	Pulp/paper mill - integrated	paper	307	0.074 kg/Mg total products	After wastewater treatment	164
Chloroform	67663	2833	Ascorbic acid production	Sulfite papergrade pulp and paper	301060	223 Mg/yr	Based on one facility (30 million lb/yr production)	160
Chloroform	67663	2834	Pharmaceutical manufacture	Plantwide emissions	301060	160 kg/Mg chloroform used	Controlled	164
Chloroform	67663	2869	Acetaldehyde production	Off-gas vent	30112014	0.4 lb/1000 lb acetaldehyde	Controlled, low pressure scrubber, data from one plant	163
Chloroform	67663	2869	Methylene chloride production - methyl chloride chlorination	Inert gas purge vent/product recovery condenser	301125	8.0 x 10E-6 lb/lb product	Derived from site visit	13
Chloroform	67663	2869	Methylene chloride production - methane chlorination	Inert gas purge vent/product recovery condenser	301125	4.0 x 10E-6 lb/lb product	Derived from site visit	13
Chloroform	67663	2869	Ethylene dichloride production - balanced process	Oxychlorination vent - air process	30112501	0.65 kg/Mg EDC produced	Highest value reported in reference uncontrolled	164
Chloroform	67663	2869	Ethylene dichloride production - balanced process	Oxychlorination vent - air process	30112501	0.013 kg/Mg EDC produced	Highest value reported in reference thermal oxidizer	164
Chloroform	67663	2869	Ethylene dichloride production - balanced process	Oxychlorination vent - oxygen process	30112501	0.12 kg/Mg EDC produced	Highest value in reference uncontrolled	164
Chloroform	67663	2869	Ethylene dichloride production - balanced process	Oxychlorination vent - oxygen process	30112501	0.0026 kg/Mg EDC produced	Highest value in reference thermal oxidizer	164
Chloroform	67663	2869	Ethylene dichloride production - balanced process	Column vents	30112501	1.0 kg/Mg EDC produced	Uncontrolled	164
Chloroform	67663	2869	Ethylene dichloride production - balanced process	Column vents	30112501	<0.02 kg/Mg EDC produced	Thermal oxidizer	164
Chloroform	67663	2869	Ethylene dichloride production - balanced process	Absorption	30112501	0.005 g/kg produced	Control unclear, based on mass balance and testing	95
Chloroform	67663	2869	Ethylene dichloride production - anhydrous chlorination	Separation	30112501	0.042 g/kg produced	Control unclear, based on mass balance and testing	95
Chloroform	67663	2869	Ethylene dichloride production - balanced process	Liquid waste storage	30112509	0.003 kg/Mg EDC produced	Uncontrolled	164

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chloroform	67663	2869	Ethylene dichloride production - balanced process	Liquid waste storage	30112509	0.00045 kg/Mg EDC produced	Refrigerated condenser	164
Chloroform	67663	2869	Chloroform production - methane chlorination	Distillation area emergency inert gas vent	30112510	0.008 kg/Mg total chloromethanes prod.	Uncontrolled	164
Chloroform	67663	2869	Chloromethane production - methanol/CN3Cl chlorination	Inert-gas purge vent for condenser associated with chloroform distillation	30112510	0.0056 kg/Mg total chloromethanes prod.	Uncontrolled, hypoth. fac. producing 25% methyl chloride, 48% ac, 25% chloroform, & 2% carbon tet.	72
Chloroform	67663	2869	Chloroform production - methanol/CN3Cl chlorination	Storage tanks	30112511	1.6 kg/Mg total chloromethane produced	Total of crude, surge, day, product tanks for 22,500 Mg plant, fixed-roof tanks	164
Chloroform	67663	2869	Chloroform production - methane chlorination	Storage tanks	30112511	1.5 kg/Mg total chloromethanes produced	Total of crude, day and product tanks for 50,000 Mg plant, fixed roof tanks	164
Chloroform	67663	2869	Chloroform production - methane chlorination	Methane inert purge vent	30112511	0.0033 kg/Mg total chloromethanes prod.	Uncontrolled	164
Chloroform	67663	2869	Chloromethane production - methane chlorination	Recycled-methane inert-gas purge vent	30112511	0.0033 kg/Mg total chloromethanes capac.	Uncontrolled, based on information supplied by one producer	71
Chloroform	67663	2869	Chloroform production - methanol/CN3Cl chlorination	Process fugitives	30112514	0.46 kg/hr	Controlled, monthly I&M, see reference for more control values	164
Chloroform	67663	2869	Chloroform production - methane chlorination	Process fugitives	30112514	3.1 kg/hr	Uncontrolled	164
Chloroform	67663	2869	Chloroform production - methane chlorination	Process fugitives	30112514	1.1 kg/hr	Controlled, monthly I&M, see reference for more control values	164
Chloroform	67663	2869	Chloroform production - methane chlorination	Handling/disposing liquid waste	30112514	0.21 kg/Mg chloroform produced	Uncontrolled, assumed all CN3Cl evaporates	164
Chloroform	67663	2869	Chloroform production (any method)	Handling/loading tank cars, trucks	30112514	0.35 kg/Mg loaded	Uncontrolled	164
Chloroform	67663	2869	Chloroform production - methanol/CN3Cl chlorination	Process fugitives	30112514	1.4 kg/hr	Uncontrolled	164
Chloroform	67663	2869	Methylene chloride production - methyl chloride chlorination	Fugitive	30112514	2.47 x 10E-4 lb/lb product	Derived from site visit	13
Chloroform	67663	2869	Methylene chloride production - methane chlorination	Fugitive	30112514	1.8 x 10E-4 lb/lb product	Derived from site visit	13

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chloroform	67663	2869	Perchloroethylene and trichloroethylene production	Wastewater stripper	30112520	0.12 kg/kg perchloroethylene produced	Controlled with 2 condensers, may not apply to all PCE/TCE plants, see reference	164
Chloroform	67663	2869	Fluorocarbon 22 production	Chloroform storage	30112780	0.00254 kg/kg fluorocarbon 22 produced	Uncontrolled, fixed roof tank	154
Chloroform	67663	2869	Fluorocarbon 22 production	Fugitives	30112780	<0.023 kg/hr	Uncontrolled	164
Chloroform	67663	2869	Fluorocarbon 22 production	Chloroform storage	30112780	0.0003 kg/kg fluorocarbon 22 produced	Controlled with refrigerated condenser	164
Chloroform	67663	2869	Methylene chloride production - methyl chloride chlorination	Storage	407060	9.75 x 10E-4 lb/lb product	Derived from site visit	13
Chloroform	67663	2869	Methylene chloride production - methane chlorination	Storage	407060	2.89 x 10E-4 lb/lb product	Derived from site visit	13
Chloroform	67663	2899	Oxybisphenoxaline production	Plantwide		0.66 g/s	Carbon adsorption	160
Chloroform	67663	2899	1,3-bisocyanate production	Plantwide		0.25 g/s	Carbon adsorption	160
Chloroform	67663	2899	Oxybisphenoxaline and 1,3-diisocyanate production	Desecration of aqueous waste		0.81 g/s	Uncontrolled	160
Chloroform	67663	4911	Electricity generation	Cooling towers - once through systems		0.41 kg/10E9 liters cooling water	Uncontrolled	164
Chloroform	67663	4911	Electricity generation	Cooling towers - recirculating systems		0.75 kg/10E6 liters cooling water	Uncontrolled	164
Chloroform	67663	4941	Drinking water chlorination	Evaporation		0.041 kg/10E6 liters water chlorinated		164
Chloroform	67663	4941	Municipal wastewater treatment	Evaporation		0.014 kg/10E6 liter mun wastewater disch		164
Chloroform	67663	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	3.6 mg/kg dry sludge	Average of six tests, scrubber	101
Chloroform	67663	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	3.88 mg/kg dry sludge	One test, scrubber	101
Chloroform	67663	4953	Wastewater treatment	POTW	50100701	0.52 Mg/Mg of chloroform in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Chlorophenol, 2-	95578	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	<12 ug/kg dry sludge	One test, scrubber	101

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chlorophenol, 2-	95578	4953	Sludge incineration	Fluidized-bed furnace	50100506	<20 ug/kg dry sludge	One test, scrubber	101
Chlorophenol, 2-	95578	4953	Wastewater treatment	POTW	50100701	0.03 kg/Mg 2-chlorophenol in influent	Based on mls. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	60
Chlorophenols		4953	Municipal waste combustion	Existing mass burn heat recovery facility	501001	0.46 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Chlorophenols		4953	Municipal waste combustion	Projected or state-of-the-art mass burn heat recovery facility	501001	0.018 g/Mg of waste combusted	Controlled by ESP, based on source test	118
Chlorophenols		4953	Municipal waste combustion	Mass burn nonheat recovery facility	501001	0.46 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Chlorophenols		4953	Municipal waste combustion	Refuse-derived fuel facility	501001	0.18 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Chlorophenols		4953	Municipal waste combustion	Modular facility	501001	0.018 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Chlorophenols		4953	Municipal waste combustion	Existing mass burn heat recovery facility	501001	0.03 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Chlorophenols		4953	Municipal waste combustion	Projected or state-of-the-art mass burn heat recovery facility	501001	0.001 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Chlorophenols		4953	Municipal waste combustion	Mass burn nonheat recovery facility	501001	0.03 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Chlorophenols		4953	Municipal waste combustion	Refuse-derived fuel facility	501001	0.01 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Chlorophenols		4953	Municipal waste combustion	Modular facility	501001	0.001 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Chlorophenols		2821	Polyvinyl chloride production	Suspension process, entire plant	301018	46 x 10E-5 g/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chloroprene	107051	2822	Neoprene manufacture	Jet vent scrubber	301026	0.17 g/kg neoprene	Engineering judgment	123
Chloroprene	107051	2822	Neoprene manufacture	Reels tank	301026	0.011 g/kg neoprene	Engineering judgment	123
Chloroprene	107051	2822	Neoprene manufacture	Refined chloroprene tanks	301026	0.113 g/kg neoprene	Engineering judgment	123
Chloroprene	107051	2822	Neoprene manufacture	Chloroprene vent condenser	301026	0.009 g/kg neoprene	Engineering judgment	123
Chloroprene	107051	2822	Neoprene manufacture	Vacuum column jet	301026	0.29 g/kg neoprene	Engineering judgment	123
Chloroprene	107051	2822	Neoprene manufacture	Recycle chloroprene tank	301026	0.003 g/kg neoprene	Engineering judgment	123
Chloroprene	107051	2822	Neoprene manufacture	Batch polykettles	301026	1.1 g/kg neoprene	Engineering judgment	123
Chloroprene	107051	2822	Neoprene manufacture	Vaporization from process wastewater	301026	0.035 g/kg neoprene	Engineering judgment	123
Chloroprene	107051	2822	Neoprene manufacture	Strippers	30102611	0.43 g/kg neoprene	Engineering judgment	123
Chloroprene	107051	2822	Neoprene manufacture	Emission storage tanks	30102611	0.17 g/kg neoprene	Engineering judgment	123
Chloroprene	107051	2822	Neoprene manufacture	Tank car vents	30102611	0.21 g/kg neoprene	Engineering judgment	123
Chloroprene	107051	2822	Neoprene manufacture	Wash belts	30102611	0.029 g/kg neoprene	Engineering judgment	123
Chloroprene	107051	2822	Neoprene manufacture	Dryer exhaust	30102611	0.04 g/kg neoprene	Engineering judgment	123
Chloroprene	107051	2822	Neoprene manufacture	Blend tanks	30102614	0.16 g/kg neoprene	Engineering judgment	123
Chloroprene	7440473		Coal combustion, residential	Bituminous coal-fired boilers		157 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgment	36
Chromium	7440473		Coal combustion, residential	Subbituminous coal-fired boilers		156 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgment	36
Chromium	7440473		Coal combustion, residential	Anthracite coal-fired boilers		372 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgment	36
Chromium	7440473		Coal combustion, residential	Lignite coal-fired boilers		188 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgment	36
Chromium	7440473		Coal combustion, residential	Boilers fired by coal from northern plains region		85.3 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chromium	7440473		Coal combustion, residential	Boilers fired by coal from rocky mountain region		218 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion, residential	Boilers fired by coal from appalachian region		157 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion, residential	Boilers fired by coal from interior region		248 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Chromium	7440473		Wood combustion, residential	Woodstove without baffle		0.90 g/kg wood burned	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Chromium	7440473		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	21 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Chromium	7440473		Oil combustion	Distillate oil-fired boilers, util/commerc/industr/residential	1	47.5 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Chromium	7440473		Oil combustion	Distillate oil-fired boilers, util/commerc/industr/residential	1	27.8 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Chromium	7440473		Oil combustion	Distillate oil-fired boilers, util/commerc/industr/residential	1	13.92 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Chromium	7440473		Oil combustion	Distillate oil-fired boilers, util/commerc/industr/residential	1	3.64 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Chromium	7440473		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	12.18 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Chromium	7440473		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	6.09 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Chromium	7440473		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	1.68 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	1250-1570 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Chromium	7440473		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	721-906 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	356-447 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	102-129 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	0.0036 lb/10E12 Btu	Utility boiler emissions of Cr+6 only, controlled with fabric filter, based on source test	36
Chromium	7440473		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	1020-1570 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	588-906 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	291-477 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	84-129 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Bituminous coal-fired cyclone boiler, util/commerc/industr	1	212-1570 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Bituminous coal-fired cyclone boiler, util/commerc/industr	1	122-906 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Bituminous coal-fired cyclone boiler, util/commerc/industr	1	60-447 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Bituminous coal-fired cyclone boiler, util/commerc/industr	1	17-129 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Bituminous coal-fired stoker boilers, util/commerc/industr	1	942-1570 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chromium	7440-73		Coal combustion	Bituminous coal-fired stoker boilers, util/commerc/industr	1	544-906 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Chromium	7440-73		Coal combustion	Bituminous coal-fired stoker boilers, util/commerc/industr	1	268-447 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Chromium	7440-73		Coal combustion	Bituminous coal-fired stoker boiler, util/commerc/industr	1	1.5-5.5 lb/10E12 Btu	Indus. & commercial boiler emis. at CR-6 only, controlled with 2 mechan. ppt in series, source test	36
Chromium	7440-73		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	1500-1860 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Chromium	7440-73		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	866-1080 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Chromium	7440-73		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	428-536 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Chromium	7440-73		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	123-154 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Chromium	7440-73		Coal combustion	Lignite coal-fired cyclone boilers, util/commerc/industr	1	253-1880 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Chromium	7440-73		Coal combustion	Lignite coal-fired cyclone boilers, util/commerc/industr	1	146-1080 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Chromium	7440-73		Coal combustion	Lignite coal-fired cyclone boilers, util/commerc/industr	1	72-536 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Chromium	7440-73		Coal combustion	Lignite coal-fired cyclone boilers, util/commerc/industr	1	21-154 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Chromium	7440-73		Coal combustion	Lignite coal-fired stoker boilers, util/commerc/industr	1	1130-1860 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Chromium	7440-73		Coal combustion	Lignite coal-fired stoker boilers, util/commerc/industr	1	767-1080 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Chromium	7440473		Coal combustion	Lignite coal-fired boiler boilers, util/commerc/industr	1	379-536 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Anthracite pulverized dry bottom boilers, util/commerc/industr	1	2970-3720 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Anthracite pulverized dry bottom boilers, util/commerc/industr	1	1710-2150 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Anthracite pulverized dry bottom boilers, util/commerc/industr	1	844-1060 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Anthracite pulverized dry bottom boilers, util/commerc/industr	1	244-305 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	2420-3720 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	1400-2150 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	690-1060 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	198-305 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	502-3720 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	290-2150 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	143-1060 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Chromium	7440473		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	41-305 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chromium	7440473		Coal combustion	Anthracite coal-fired stoker boilers, util/commerc/industr	1	2250-3720 lb/10E12 Btu	judgment Uncontrolled, calculated based on engineering judgment	36
Chromium	7440473		Coal combustion	Anthracite coal-fired stoker boilers, util/commerc/industr	1	1290-2150 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Chromium	7440473		Coal combustion	Anthracite coal-fired stoker boilers, util/commerc/industr	1	636-1060 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Chromium	7440473		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	1220-1880 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Chromium	7440473		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	704-1080 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Chromium	7440473		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	348-536 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Chromium	7440473		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	100-154 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgment	36
Chromium	7440473		Waste oil combustion	Waste oil-fired boilers (<150 million Btu/yr) or space heaters	1	0.021 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgment, variable	55
Chromium	7440473	226	Woven fabric finishing	Tenter frame - resin finishing	330001	0.53 mg/kg fabric	Uncontrolled, average of four tests	52
Chromium	7440473	226	Woven fabric finishing	Thermosol dyeing	330001	0.12 mg/kg fabric	Uncontrolled, average of three tests, total chromium	52
Chromium	7440473	226	Woven fabric finishing	Heat setting	330001	0.017 mg/kg fabric	Uncontrolled, based on test data, total chromium	52
Chromium	7440473	226	Woven fabric finishing	Curing oven - resin finish	330001	0.25 mg/kg fabric	Uncontrolled, average of three tests	52
Chromium	7440473	2819	Chromic acid production	Chromic acid reactor, melter, flaker	301	0.2 kg/Mg raw material processed	Uncontrolled, as total chromium, likely to be Cr VI	161
Chromium	7440473	2819	Chromic acid production	Chromic acid reactor, melter, flaker	301	0.01 kg/Mg raw material	Scrubber, as total chromium,	161

POLLUTANT	CAS NUMBER	SITE CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chromium	7440-73	2819	Chromic acid production	flaker	301	processed	likely to be Cr VI	161
Chromium	7440-73	2819	Chromic acid production	Chromic acid filter	301	1.4 kg/Mg raw material processed	Uncontrolled, as total chromium, likely to be Cr VI	161
Chromium	7440-73	2819	Chromic acid production	Chromic acid filter	301	0.01 kg/Mg raw material processed	Scrubber, as total chromium, likely to be Cr VI	161
Chromium	7440-73	2819	Chromic acid production	Packaging	301	0.7 kg/Mg raw material processed	Uncontrolled, as total chromium, likely to be Cr VI	161
Chromium	7440-73	2819	Chromic acid production	Packaging	301	0.04 kg/Mg raw material processed	Scrubber, as total chromium, likely to be Cr VI	161
Chromium	7440-73	3241	Cement manufacture - dry process	Kiln	30500606	13 kg/1000 Mg cement produced	Includes fuel emissions, as total chromium, uncontrolled	161
Chromium	7440-73	3241	Cement manufacture - dry process	Kiln	30500606	0.006 kg/1000 Mg cement produced	Includes fuel emissions, as total chromium, uncontrolled	161
Chromium	7440-73	3241	Cement manufacture - dry process	Kiln	30500606	0.005 kg/1000 Mg cement produced	Includes fuel emissions, as total chromium, fabric filter	161
Chromium	7440-73	3241	Cement manufacture - dry process	Dryer/grinder	30500613	5 kg/1000 Mg cement produced	Uncontrolled, includes fuel emissions, as total chromium	161
Chromium	7440-73	3241	Cement manufacture - wet process	Kiln	30500706	12 kg/1000 Mg cement produced	Uncontrolled, includes fuel emissions, as total chromium	161
Chromium	7440-73	3241	Cement manufacture - wet process	Kiln	30500706	0.011 kg/1000 Mg cement produced	ESP, includes fuel emissions, as total chromium	161
Chromium	7440-73	3241	Cement manufacture - wet process	Kiln	30500706	0.008 kg/1000 Mg cement produced	Fabric filter, includes fuel emissions, as total chromium	161
Chromium	7440-73	3241	Cement manufacture - wet process	Clinker cooler	30500714	0.004 kg/1000 Mg cement produced	Fabric filter, includes fuel, as total chromium	161
Chromium	7440-73	3241	Cement manufacture - wet process	Clinker cooler	30500714	0.004 kg/1000 Mg cement produced	Gravel bed, includes fuel, as total chromium	161
Chromium	7440-73	3241	Cement manufacture - wet process	Clinker cooler	30500714	0.002 kg/1000 Mg cement produced	Wet scrubber, includes fuel, as total chromium	161
Chromium	7440-73	3241	Cement manufacture - wet process	Dryer/grinder	30500717	1.7 kg/1000 Mg cement produced	Uncontrolled, includes fuel emissions, as total chromium	161
Chromium	7440-73	3297	Refractory production	Pressing process: ore	305	75 kg/Mg refractory produced	Uncontrolled, as total chromium,	161

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Chromium	7440-73	3297	Refractory production	crush/size/dry	305		may overstate uncontrolled emissions	161
Chromium	7440-73	3297	Refractory production	Pressing process: ore crush/size/dry	305	27 kg/Mg refractory produced	Controlled (64%), as total chromium	161
Chromium	7440-73	3297	Refractory production	Pressing process: brick firing kiln	305	0.1 kg/Mg refractory produced	Uncontrolled, as total chromium	161
Chromium	7440-73	3297	Refractory production	Fusion casting: crush/size/dry	305	75 kg/Mg refractory produced	Uncontrolled, as total chromium	161
Chromium	7440-73	3297	Refractory production	Fusion casting: crush/size/dry	305	17 kg/Mg refractory produced	Controlled (77%), as total chromium	161
Chromium	7440-73	3297	Refractory production	Fusion casting: crush/size/dry	305	37 kg/Mg refractory produced	Uncontrolled, as total chromium	161
Chromium	7440-73	3297	Refractory production	Fusion casting: crush/size/dry	305	9 kg/Mg refractory produced	Controlled (77%), as total chromium	161
Chromium	7440-73	3297	Refractory production: chrome-magnesite brick	Ore store/grind/size	305	0.03 kg/Mg raw material processed	Fabric filter, as total chromium, range 0.01-0.05, material is chrome ore only	161
Chromium	7440-73	3297	Refractory production: chrome-magnesite brick	Dryer	305	0.0019 kg/Mg raw material processed	Fabric filter, as total chromium, raw material is chrome ore and magnesite	161
Chromium	7440-73	3297	Refractory production: chrome-magnesite brick	Raw material storage silo	305	0.0027 kg/Mg raw material processed	Fabric filter, as total chromium, raw material is chrome ore and magnesite	161
Chromium	7440-73	3297	Refractory production: chrome-magnesite brick	Press/fine: mixer	305	0.0016 kg/Mg raw material processed	Fabric filter, as total chromium, raw material is magnesite and chrome ore	161
Chromium	7440-73	3297	Refractory production: chrome-magnesite brick	Press/fine: brick dryer	305	0.0037 kg/Mg raw material processed	Scrubber, as total chromium, raw material is magnesite and chrome ore	161
Chromium	7440-73	3297	Refractory production: chrome-magnesite brick	Press/fine: brick kiln	305	0.0004 kg/Mg raw material processed	Scrubber, as total chromium, raw material is magnesite and chrome ore	161
Chromium	7440-73	3297	Refractory production	Milling	305	0.48 kg/Mg raw material	Wet scrubber, as total chromium,	161

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chromium	7440473	3297	chromic oxide brick	Spray dryer	305	processed 0.48 kg/Mg raw material processed	raw material is chromic oxide Fabric filter, as total chromium, raw material is chromic oxide	161
Chromium	7440473	3297	Refractory production: chromic oxide brick	Mixer (pressing process)	305	0.48 kg/Mg raw material processed	Wet scrubber, as total chromium, raw material is chromic oxide	161
Chromium	7440473	3312	Refractory production: chromic oxide brick	Argon-oxygen decarburization vessel: stainless and specialty alloys	303009	0.53 kg/Mg steel produced	Average of 0.43-0.62, as total chromium, after capture, before control	161
Chromium	7440473	3312	Steel production	Electric arc furnace: stainless and specialty alloys	30300904	1.6 kg/Mg steel produced	Average of 0.8-2.4, total chromium, after capture, before control	161
Chromium	7440473	3312	Steel production	Electric arc furnace: mixed products	30300904	0.34 kg/Mg steel produced	Average of 0.17-0.5, total chromium, after capture, before control	161
Chromium	7440473	3312	Steel production	Electric arc furnace: carbon and alloy steel	30300908	0.03 kg/Mg steel produced	Average of 0.015-0.045, as total chromium, after capture, before control	161
Chromium	7440473	3313	Electric arc furnace, high-carbon ferrochrome	Open furnace	303006	0.06 kg/Muhr	Scrubber, as total chromium, assumes 14% PM is chromium by weight	161
Chromium	7440473	3313	Electric arc furnace, high-carbon ferrochrome	Open furnace	303006	0.0022 kg/Muhr	Fabric filter, as total chromium, assumes 14% PM is chromium by weight	161
Chromium	7440473	3313	Electric arc furnace, high-carbon ferrochrome	Open furnace	303006	0.04 kg/Muhr	ESP, as total chromium, assumes 14% PM is chromium by weight	161
Chromium	7440473	3313	Electric arc furnace, ferrosilicon	Open furnace	30300601	0.0034 kg/Muhr	Scrubber, as total chromium, assumes 0.4% total controlled PM is chromium	161
Chromium	7440473	3313	Electric arc furnace, ferrosilicon	Open furnace	30300601	0.00081 kg/Muhr	Fabric filter, controlled chromium, assumes 0.4% total controlled PM is chromium	161
Chromium	7440473	3313	Ferrochrome plant	Dry, crush, size ore	30300611	0.34 g/kg ore processed	Composite of controlled and uncontrolled, as total chromium	161
Chromium	7440473	3313	Ferrochrome plant	Receipt/store ore in stock pile	30300613	0.34 g/kg ore processed	Composite of controlled and uncontrolled, as total chromium	161

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chromium	7440473	3313	Ferrochrome plant	Wedge/feed ore to electric arc furnace	30300614	0.31 g/kg ore processed	Composite of controlled and uncontrolled, as total chromium	161
Chromium	7440473	3313	Ferrochrome plant: ferrochrome-silicon product	Cast ferrochrome product	30300617	0.036 g/kg product	Composite of controlled and uncontrolled sources, as total chromium	161
Chromium	7440473	3313	Ferrochrome plant: high-carbon ferrochrome	Cast ferrochrome product	30300617	0.070 g/kg product	Composite of controlled and uncontrolled sources, as total chromium	161
Chromium	7440473	3313	Ferrochrome plant: ferrochrome-silicon product	Treating molten alloy with Cl in ladle	30300699	1.7 g/kg product	Composite of controlled and uncontrolled, as total chromium	161
Chromium	7440473	3313	Ferrochrome plant: ferrochrome-silicon product	Crush/grind ferrochrome product	30300699	0.11 g/kg product	Composite of controlled and uncontrolled sources, as total chromium	161
Chromium	7440473	3313	Ferrochrome plant: high-carbon ferrochrome	Treat molten alloy with Cl in ladle	30300699	3.3 g/kg product	Composite of controlled and uncontrolled sources, as total chromium	161
Chromium	7440473	3313	Ferrochrome plant: high-carbon ferrochrome	Crush/grind product	30300699	0.21 g/kg product	Composite of controlled and uncontrolled sources, as total chromium	161
Chromium	7440473	3313	Electric arc furnace, ferrosilicon	Closed furnace	30300702	0.00002 kg/Mwhr	Scrubber, as total chromium, assumes chromium is 0.4% of controlled PM	161
Chromium	7440473	3313	Electric arc furnace, ferrochrome-silicon	Furnace	30300704	0.5 kg/Mwhr	Average of 0.2-0.78 range, as total Cr uncontrolled, assumes Cr is 0.4-1.4% of PM emissions by wt.	161
Chromium	7440473	3313	Electric arc furnace, high-carbon ferrochrome and charge Cr	Furnace	30300704	3.9 kg/Mwhr	Uncontrolled, as total chromium, assumes chromium is 14% of PM by weight	161
Chromium	7440473	3313	Electric arc furnace, chrome ore/lime melt	Furnace	30300704	0.63 kg/Mwhr	Uncontrolled, as total chromium, assumes chromium is 15% of PM by weight	161
Chromium	7440473	3339	Chromite ore refining	Chromite ore dryer	303	0.005 kg/Mg ore processed	Bag collector, as total chromium, likely Cr III	161
Chromium	7440473	3339	Chromite ore refining	Chromite ore dryer	303	0.001 kg/Mg ore processed	Wet scrubber (assumed 99%), as total chromium, like y Cr III	161

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chromium	7440473	3339	Chromite ore refining	Handling mill and cyclone	303	0.003 kg/Mg ore processed	Fabric filter, as total chromium, likely Cr III	161
Chromium	7440473	3339	Chromite ore refining	Refined ore storage	303	0.05 kg/Mg ore processed	Uncontrolled, as total chromium, likely Cr III	161
Chromium	7440473	3339	Chromite ore refining	Refined ore storage	303	0.00005 kg/Mg ore processed	Dust collector, as total chromium, likely Cr III	161
Chromium	7440473	34	Decorative chrome electroplating	Plating tank	30901001	4.4×10^{-5} g/hr/amp	Total chrome, ave. of 3 values, based on current (amperes) used, used fluorocarbon fume suppressant	135
Chromium	7440473	34	Decorative chrome electroplating	Plating tank	30901001	0.050 g/hr/m ²	Total chrome, ave. of 3 values, based on surface area of tank, used fluorocarbon fume suppressant	135
Chromium	7440473	34	Decorative chrome electroplating	Plating tank	30901001	1.2×10^{-5} g/hr/amp	Hex chrome, ave. of 3 values, based on current (amperes) used, used fluorocarbon fume suppressant	135
Chromium	7440473	34	Decorative chrome electroplating	Plating tank	30901001	0.012 g/hr/m ²	Hex chrome, ave. of 3 values, based on surface area of tank, used fluorocarbon fume suppressant	135
Chromium	7440473	34	Hard chrome plating	Plating tank	30901001	2.6×10^{-3} g/hr/amp	Total chrome, average of 3 values, based on amperes used, uncontrolled	135
Chromium	7440473	34	Hard chrome plating	Plating tank	30901001	2.6 g/hr/m ²	Total chrome, ave. of 3 values, based on tank surface area, uncontrolled	135
Chromium	7440473	34	Hard chrome plating	Plating tank	30901001	1.3×10^{-3} g/hr/amp	Hex chrome, average of 3 values, based on amperes used, uncontrolled	135
Chromium	7440473	34	Hard chrome plating	Plating tank	30901001	1.2 g/hr/m ²	Hex chrome, average of 3 values, based on tank surface area, uncontrolled	135
Chromium	7440473	34	Hard chrome plating	Plating tank	30901001	4.8×10^{-3} g/hr/amp	Total chrome, average factor for uncontrolled plating tanks	135
Chromium	7440473	3471	Chrome plating	Plating tank	301	4.8×10^{-3} g/hr/amp	Uncontrolled	161
Chromium	7440473	3471	Chrome plating	Hard plating tank	301	0.0008 kg/hr/m ² tank area	Range 0.00026-0.004 and 0.00043-0.0012, as Cr VI, uncontrolled	161

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chromium	7440473	3471	Chromic plating	Chromic acid anodizing tank	301	0.0093 kg/hr/m ² tank area	As Cr VI, uncontrolled	161
Chromium	7440473	4911	Fresh water utility cooling towers	Cooling tower	30600701	2.5 pg/J	Drift loss range of 0.1-0.2%, based on source tests, as total chromium	161
Chromium	7440473	4911	Fresh water utility cooling towers	Cooling tower	30600701	0.06 pg/J	Drift loss range of 0.0002-0.005%, based on source tests, as total chromium	161
Chromium	7440473	4953	Municipal waste combustion	Boiling grate	501001	0.0024 kg/Mg solid waste incinerated	Wet scrubber, total chromium	161
Chromium	7440473	4953	Municipal waste combustion	Traveling grate	501001	0.0003 kg/Mg solid waste incinerated	ESP, total chromium	161
Chromium	7440473	4953	Municipal waste combustion	Incinerator stack	501001	0.002 kg/Mg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, based on material balance for Model Incinerator	98
Chromium	7440473	4953	Municipal waste combustion	Multiple hearth furnace	50100101	0.0039 kg/Mg solid waste incinerated	Refuse only, wet scrubber, total chromium	161
Chromium	7440473	4953	Municipal waste combustion	Multiple hearth furnace	50100101	0.0046 kg/Mg solid waste incinerated	Refuse and sludge, wet scrubber, total chromium	161
Chromium	7440473	4953	Sewage sludge incineration	Fluidized bed	50100506	0.0003 kg/Mg solid waste incinerated	Wet scrubber, as total chromium	161
Chromium	7440473	4953	Sewage sludge incineration	Multiple hearth	50100506	0.0077 kg/Mg solid waste incinerated	Controlled, as total chromium	161
Chromium	7440473	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	0.46 mg/kg dry sludge	Average of three tests, scrubber, total chromium	101
Chromium	7440473	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	4.04 mg/kg dry sludge	Average of 13 tests, scrubber, total chromium	101
Chromium	7440473	B06	Hospital waste incineration	Incinerator	315020	7.22 x 10E-4 lb/ton	Uncontrolled, test data, total chromium	9
Chromium (+6)	18540299	4953	Municipal waste combustion	Mass burn, water wall facility	501001	9476 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Chromium (+6)	18540299	4953	Municipal waste combustion	Mass burn, refractory facility	501001	415 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Chromium (+6)	18540299	4953	Municipal waste combustion	Refuse-derived fuel facility	501001	10.912 mg/kg controlled partic. emis.	Controlled by ESP, based on source tests	118
Chromium (+6)	18540299	4953	Municipal waste combustion	Modular facility	501001	818 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Cobalt	7440484		Wood combustion, residential	Woodstove without baffle		0.06 g/Mg wood burned	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Cobalt	7440484	226	Woven fabric finishing	Tenter frames - resin finishing	330001	0.086 mg/kg fabric	Uncontrolled, average of four tests	52
Cobalt	7440484	226	Woven fabric finishing	Thermosol dyeing	330001	0.0051 mg/kg fabric	Uncontrolled, average of three tests	52
Cobalt	7440484	226	Woven fabric finishing	Heat setting	330001	0.017 mg/kg fabric	Uncontrolled, based on test data	52
Cobalt	7440484	226	Woven fabric finishing	Curing oven - resin finish	330001	0.018 mg/kg fabric	Uncontrolled, average of three tests	52
Cobalt	7440484	4953	Municipal waste combustion	Incinerator stack	501001	0.00005 kg/Mg munic. solid waste-dry wt.	Controlled by spray-baffle scrubber, based on material balance for model incinerator	98
Coke oven emissions		3312	Coking	Charging	30300302	0.05 to 0.55 kg/Mg coal	For 3-5 mins. uncontrolled charging	29
Coke oven emissions		3312	Coking	Doors	30300308	0.13 to 0.25 kg/Mg coal	For 30 to 75% leaking doors	29
Coke oven emissions		3312	Coking	Lids	30300314	0.002-0.03 kg/Mg coal	For 20 to 40% leaking lids	29
Coke oven emissions		3312	Coking	Offtakes	30300314	0.002-0.02 kg/Mg coal	For 20 to 40% leaking offtakes	29
Copper	7440508		Coal combustion, residential	Bituminous coal-fired boilers		136 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Copper	7440508		Coal combustion, residential	Subbituminous coal-fired boilers		148 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Copper	7440508		Coal combustion, residential	Anthriscite coal-fired boilers		129 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Copper	7440508		Coal combustion, residential	Lignite coal-fired boilers		239 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Copper	7440508		Coal combustion, residential	Boilers fired by coal from northern plains region		109 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Coal combustion, residential	Boilers fired by coal from rocky mountain region		153 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Coal combustion, residential	Boilers fired by coal from appalachian region		157 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Coal combustion, residential	Boilers fired by coal from interior region		160 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Wood combustion, residential	Woodstove without baffle		0.17 g/Mg wood burned	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Copper	7440508		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	278 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Oil combustion	Distillate oil-fired boilers, util/commerc/industr/residential	1	280 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Oil combustion	Distillate oil-fired boilers, util/commerc/industr/residential	1	165.2 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Copper	7440508		Oil combustion	Distillate oil-fired boilers, util/commerc/industr/residential	1	42 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Copper	7440508		Oil combustion	Distillate oil-fired boilers, util/commerc/industr/residential	1	25.2 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Copper	7440508		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	165.2 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Copper	7440508		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	42.0 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Copper	7440508		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	25.2 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Bituminous coal-fired	1	84.8 lb/10E12 Btu	Uncontrolled, based on source tests	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Copper	7440508		Coal combustion	pulverized dry bottom boilers, util/commerc/industr	1	503 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	194 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Copper	7440508		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	24 lb/10E12 Btu	Controlled with scrubber, based on source tests	36
Copper	7440508		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	573-848 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	340-503 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	86 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Copper	7440508		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	147-848 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Bituminous coal-fired cyclone boilers, util/commerc/industr	1	87-503 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Bituminous coal-fired cyclone boilers, util/commerc/industr	1	22 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Copper	7440508		Coal combustion	Bituminous coal-fired cyclone boilers, util/commerc/industr	1	448-987 lb/10E12 Btu	Uncontrolled, based on source tests	36
Copper	7440508		Coal combustion	Bituminous coal-fired spreader stoker boilers, util/commerc/industr	1	265-590 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Bituminous coal-fired spreader stoker boilers, util/commerc/industr	1	67-148 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Copper	7440508		Coal combustion	Bituminous coal-fired overfeed stoker boiler, util/commerc/industr	1	96/-1360 lb/10E12 Btu	Uncontrolled, based on calculated and measured emission factors	36
Copper	7440508		Coal combustion	Bituminous coal-fired overfeed stoker boiler, util/commerc/industr	1	590-806 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Bituminous coal-fired overfeed stoker boiler, util/commerc/industr	1	148-204 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	1490 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	884 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	341 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	42 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	1010-1490 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	597-884 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	151 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Lignite coal-fired cyclone boilers, util/commerc/industr	1	258-1490 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Lignite coal-fired cyclone boilers, util/commerc/industr	1	153-884 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Copper	7440508		Coal combustion	Lignite coal-fired cyclone boilers, util/commerc/industr	1	39 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Lignite coal-fired spreader stoker boilers, util/commerc/industr	1	787-1730 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Lignite coal-fired spreader stoker boilers, util/commerc/industr	1	465-1040 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Lignite coal-fired spreader stoker boilers, util/commerc/industr	1	118-260 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Lignite coal-fired overfeed stoker boilers, util/commerc/industr	1	1730-2390 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Lignite coal-fired overfeed stoker boilers, util/commerc/industr	1	1040-1420 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Lignite coal-fired overfeed stoker boilers, util/commerc/industr	1	260-358 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	927 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	550 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	212 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	26 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	628-927 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Anthracite coal-fired	1	372-550 lb/10E12 Btu	Controlled with multiclone,	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Copper	7440508		Coal combustion	pulverized wet bottom boilers, util/commerc/industr	1	94 lb/10E12 Btu	calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	161-927 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	95-350 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	24 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Anthracite coal-fired spreader stoker boilers, util/commerc/industr	1	490-1080 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Anthracite coal-fired spreader stoker boilers, util/commerc/industr	1	290-645 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Anthracite coal-fired spreader stoker boilers, util/commerc/industr	1	73-162 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Anthracite coal-fired overfeed stoker boilers, util/commerc/industr	1	1080-1490 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Anthracite coal-fired overfeed stoker boilers, util/commerc/industr	1	645-881 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Copper	7440508		Coal combustion	Anthracite coal-fired overfeed stoker boilers, util/commerc/industr	1	162-223 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Copper	7440508	1011	Iron ore processing	Entire process	303	0.0005 kg/Mg ore processed	Controlled, based on assumed copper content and PM factors	53
Copper	7440508	1021	Copper ore milling/processing	Entire process	303	0.002 kg/Mg ore processed	Controlled, average of estimates for about 30 plants	53
Copper	7440508	226	Woven fabric finishing	Tenter frames - resin	330001	0.26 mg/kg fabric	Uncontrolled, average of four tests	52

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Copper	7440508	226	Woven fabric finishing	finishing	330001	4.0 mg/kg fabric	Uncontrolled, average of three tests	52
Copper	7440508	226	Woven fabric finishing	Thermoset dyeing	330001	0.0061 mg/kg fabric	Uncontrolled, based on test data	52
Copper	7440508	226	Woven fabric finishing	Heat setting	330001	0.50 mg/kg fabric	Uncontrolled, average of three tests	52
Copper	7440508	2819	Copper sulfate production	Curing oven - resin finish	301	1.26 kg/Mg produced	Engineering judgement	53, 97
Copper	7440508	2895	Carbon black manufacture - oil furnace	Entire process	30100504	0.001 kg/Mg carbon black produced	Uncontrolled, copper content 0.45%, total trace elements 0.25 kg/Mg	53, 97
Copper	7440508	3312	Iron and steel production	Main process vent	30300813	0.004 kg/Mg finished sinter	Uncontrolled, after coarse PM removal, copper content 0.104%	53, 97
Copper	7440508	3312	Iron and steel production	Sinter plants/windbox	30300813	0.00009 kg/Mg finished sinter	Met ESP, copper content 0.104%	53, 97
Copper	7440508	3312	Iron and steel production	Sinter plants/windbox	30300814	0.003 kg/Mg finished sinter	Uncontrolled, copper content 0.104%	53, 97
Copper	7440508	3312	Iron and steel production	Sinter plants/sinter discharge	30300814	0.00005 kg/Mg finished sinter	Baghouse, copper content 0.104%	53, 97
Copper	7440508	3312	Iron and steel production	Sinter plants/sinter discharge	30300822	0.001 kg/Mg hot metal	Uncontrolled, average copper content 0.25, range 0.051-0.5%	53, 97
Copper	7440508	3312	Iron and steel production	Blast furnace	303009	0.005 kg/Mg steel produced	Uncontrolled, copper content 0.035%	53, 97
Copper	7440508	3312	Iron and steel production	Basic oxygen furnace (melting/refining)	303009	0.00002 kg/Mg steel produced	Open hood, vented to ESP	53, 97
Copper	7440508	3312	Iron and steel production	Basic oxygen furnace (melting/refining)	30300901	0.02 kg/Mg steel	Uncontrolled, copper content 0.16%	53, 97
Copper	7440508	3312	Iron and steel production	Open hearth furnace - melting/refining	30300901	0.0002 kg/Mg steel	Controlled - ESP, copper content 0.16	53, 97
Copper	7440508	3312	Iron and steel production	Open hearth furnace - melting/refining	30300906	0.002 kg/Mg steel	Uncontrolled, copper content 0.265%, carbon steel	53, 97
Copper	7440508	3312	Iron and steel production	Electric arc furnace - charging/tapping/slagging	30300908	0.05 kg/Mg steel produced	Uncontrolled, copper content 0.265%, carbon steel	53, 97
Copper	7440508	3312	Iron and steel production	Electric arc furnace - melting/refining	30300916	0.0001 kg/Mg hot metal	At source, copper content 0.035%	53, 97

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Copper	7440508	3312	Iron and steel production	Basic oxygen furnace tapping	30300917	0.0002 kg/Mg steel	At source, copper content 0.035%	53, 97
Copper	7440508	3313	Ferroalloy production	FeSi (50%)	30300601	0.016 kg/Mg alloy	Uncontrolled, open/closed furnace, baghouse achieves 98%	53, 97
Copper	7440508	3313	Ferroalloy production	FeSi (75%)	30300602	0.05 kg/Mg alloy	Uncontrolled, open/closed furnace, baghouse achieves 98%	53, 97
Copper	7440508	3313	Ferroalloy production	FeSi (90%)	30300603	0.11 kg/Mg alloy	Uncontrolled, open furnace	53, 97
Copper	7440508	3313	Ferroalloy production	FeMn (80%)	30300615	0.006 kg/Mg alloy	Uncontrolled, open furnace	53, 97
Copper	7440508	3321	Iron foundries	Cupola	30400301	0.0017 kg/Mg gray iron produced	Uncontrolled, copper content 0.02%, PM factors	53
Copper	7440508	3331	Primary copper smelting	Concentrate dryer	303005	0.05 kg/Mg conc. ore processed	Uncontrolled, assume 1% Cu, PM factors, acid plant achieves 99% control, Cu content range <1-47%	53, 97
Copper	7440508	3331	Primary copper smelting	Multiple hearth roaster	30300502	0.22 kg/Mg conc. ore processed	Controlled, based on assumed Cu content & PM fac., ESP achieves 99% control, assume Cu content 1% wt	53, 97
Copper	7440508	3331	Primary copper smelting	Converter	30300504	0.018 kg/Mg conc. ore processed	Uncontrolled, assume 0.1% copper, PM factors, acid plant or ESP achieves 99% control	53, 97
Copper	7440508	3331	Primary copper smelting	Reverberatory furnace	30300507	0.25 kg/Mg conc. ore processed	Controlled, based on assumed Cu content & PM fac., ESP achieves 99% control, assume Cu content 1% wt	53, 97
Copper	7440508	3331	Primary copper smelting	Electric furnace	30300510	0.5 kg/Mg conc. ore processed	Uncontrolled, assume 1% Cu, PM factors, ESP achieves 99% control, Cu content range <1-47%	53, 97
Copper	7440508	3331	Primary copper smelting	Flash furnace	30300512	0.70 kg/Mg conc. ore processed	Uncontrolled, assume 1% Cu, PM factors, acid plant achieves 99% control, Cu content range <1-47%	53, 97
Copper	7440508	3339	Primary lead smelting	Refining furnace	303010	6.8 x 10E-6 kg/Mg Pb produced	Controlled, copper content 0.04%	53
Copper	7440508	3339	Primary lead smelting	Sintering	30301001	0.001 kg/Mg Pb produced	Controlled, copper content 2%	53
Copper	7440508	3339	Primary lead smelting	Blast furnace	30301002	0.0008 kg/Mg Pb produced	Controlled, copper content 0.29%	53
Copper	7440508	3339	Primary slab zinc production	Roaster - electrolytic plant	303030	4.5 kg/Mg Zn produced	Controlled, copper content 3.7%	53

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Copper	7440508	3339	Primary slab zinc production	Roaster - pyrometallurgical plant	303030	4.5 kg/Mg Zn produced	Controlled, copper content 3.7%	53
Copper	7440508	3339	Primary slab zinc production	Sintering - pyrometallurgical plant	303030	0.003 kg/Mg Zn produced	Controlled, copper content 0.04%	53
Copper	7440508	3339	Primary slab zinc production	Vertical retorts - pyrometallurgical plant	30303005	0.001 kg/Mg Zn produced	Controlled, copper content 0.014%	53
Copper	7440508	3341	Secondary copper smelting	Cupola - insulated copper wire	30400211	0.6 kg/Mg material charged	Uncontrolled, copper content 0.5%	53, 97
Copper	7440508	3341	Secondary copper smelting	Cupola - insulated copper wire	30400211	0.025 kg/Mg material charged	ESP, copper content 0.5%	53, 97
Copper	7440508	3341	Secondary copper smelting	Cupola - scrap copper/brass	30400212	0.18 kg/Mg material charged	Uncontrolled, estimated copper 0.5%	53, 97
Copper	7440508	3341	Secondary copper smelting	Cupola - scrap copper/brass	30400212	0.006 kg/Mg material charged	Estimated copper 0.5%, ESP	53, 97
Copper	7440508	3341	Secondary copper smelting	Reverberatory furnace - brass/bronze	30400215	1.8 kg/Mg material charged	None, copper content 9.9%	53, 97
Copper	7440508	3341	Secondary copper smelting	Reverberatory furnace - brass/bronze	30400215	0.13 kg/Mg material charged	Baghouse, copper content 9.9%	53, 97
Copper	7440508	4953	Municipal waste combustion	Incinerator stack	501001	0.009 kg/Mg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, based on material balance for model incinerator	98
Copper	7440508	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	0.31 mg/kg dry sludge	One test, scrubber	101
Copper	7440508	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	10.9 mg/kg dry sludge	Average of five tests, scrubber	101
Cresote	95487	4741	Rail tank car cleaning	Entire process	50100701	5.18 lb/tank car	Emission measurement	97
Cresol, o-	95487	4953	Wastewater treatment	POTW	50100701	0.006 Mg/Mg o-cresol in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Cresol, p-	106445	4953	Wastewater treatment	POTW	50100701	0.0009 Mg/Mg p-cresol in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Cumene	98828	2869	Manufacture of acetone and phenol from cumene	Cumene peroxidation vent	30199151	0.86 g/kg phenol produced	Controlled (adsorption or condensation), based on industry sources	15

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Cumene	98828	2869	Manufacture of acetone and phenol from cumene	Cleavage section vents, combined	30109151	0.14 g/kg phenol produced	Controlled (condensation), based on engineering judgement	15
Cumene	98828	2869	Manufacture of acetone and phenol from cumene	Storage tank vents combined	30109151	0.028 g/kg phenol produced	Controlled (floating roof), based on engineering judgement	15
Dibenzofuran	132649	4953	Wastewater treatment	POTW	50100701	0.97 Mg/Mg dibenzofuran in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	60
Dibutyl phthalate	84742	226	Woven fabric finishing	Tenter frames - resin finish	330001	1.4 mg/kg fabric	Uncontrolled, test data	52
Dibutyl phthalate	84742	226	Woven fabric finishing	Heat setting	330001	0.41 mg/kg fabric	Uncontrolled, based on test data	52
Dichlorobenzene, 1,2-	95501	2834	Pharmaceutical manufacture	Process emissions	301060	140 g/Mg 1,2-dichlorobenzene used	Mass balance (industry wide)	48
Dichlorobenzene, 1,2-	95501	2865	Dichloroaniline(3,4) production	Process emission		1.05 kg/Mg 3,4-dichloroaniline produced	General estimates, no specifics on control	48
Dichlorobenzene, 1,2-	95501	2865	Dichloroaniline(3,4) production	Storage emissions		0.15 kg/Mg 3,4-dichloroaniline produced	General estimates, no specifics on control	48
Dichlorobenzene, 1,2-	95501	2865	Dichloroaniline(3,4) production	Fugitive emission		0.30 kg/Mg 3,4-dichloroaniline produced	General estimates, no specifics on control	48
Dichlorobenzene, 1,2-	95501	2865	Dye synthesis	Process emissions	301121	0.40 kg/Mg dye produced	General estimate, no specifics on controls	48
Dichlorobenzene, 1,2-	95501	2865	Dye synthesis	Storage emissions	301121	0.05 kg/Mg dye produced	General estimate, no specifics on controls	48
Dichlorobenzene, 1,2-	95501	2865	Dye synthesis	Fugitive emissions	301121	0.05 kg/Mg dye produced	General estimate, no specifics on controls	48
Dichlorobenzene, 1,2-	95501	2865	Dichlorobenzene(1,2) production	Process emissions	301301	2.32 kg/Mg 1,2-dichlorobenzene produced	Based on data from site visit, no specifics on controls, likely to be high value	48
Dichlorobenzene, 1,2-	95501	2865	Dichlorobenzene(1,2) production	Storage emissions	301301	0.47 kg/Mg 1,2-dichlorobenzene produced	Based on data from site visit, no specifics on controls, likely to be high value	48
Dichlorobenzene, 1,2-	95501	2865	Dichlorobenzene(1,2) production	Fugitive emissions	301301	0.76 kg/Mg 1,2-dichlorobenzene produced	Based on data from site visit, no specifics on controls, likely to be high value	48

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Dichlorobenzene, 1,2-	95501	4741	Rail tank car cleaning	Entire process		0.1662 lb/tank car	Emission measurement	97
Dichlorobenzene, 1,2-	95501	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<19 ug/kg dry sludge	One test, scrubber	101
Dichlorobenzene, 1,2-	95501	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	1700 ug/kg dry sludge	Average of two tests, scrubber	101
Dichlorobenzene, 1,2-	95501	4953	Wastewater treatment	POTW	50100701	0.41 Mg/Mg 1,2-dichlorobenz. in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Dichlorobenzene, 1,3-	561731	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<19 ug/kg dry sludge	One test, scrubber	101
Dichlorobenzene, 1,3-	561731	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	1300 ug/kg dry sludge	Average of two tests, scrubber	101
Dichlorobenzene, 1,3-	561731	4953	Wastewater treatment	POTW	50100701	0.50 Mg/Mg 1,3-dichlorobenz. in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	60
Dichlorobenzene, 1,4-	106467	2865	Dichlorobenzene(1,4) production	Process emissions	301301	0.00581 kg/kg product produced	Estimate based on data from site visits, specific on control not available, likely to be high value	48
Dichlorobenzene, 1,4-	106467	2865	Dichlorobenzene(1,4) production	Storage emissions	301301	0.00041 kg/kg product produced	Estimate based on data from site visits, specific on control not available, likely to be high value	48
Dichlorobenzene, 1,4-	106467	2865	Dichlorobenzene(1,4) production	Fugitive emissions	301301	0.00102 kg/kg product produced	Estimate based on data from site visits, specific on control not available, likely to be high value	48
Dichlorobenzene, 1,4-	106467	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<19 ug/kg dry sludge	One test, scrubber	101
Dichlorobenzene, 1,4-	106467	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	6069 ug/kg dry sludge	One test, scrubber	101
Dichlorobenzene, 1,4-	106467	4953	Wastewater treatment	POTW	50100701	0.39 Mg/Mg 1,4-dichlorobenz. in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	60
Dichlorobenzenes	25321226	226	Woven fabric finishing	Thermosol dyeing	330001	1.6 mg/kg fabric	Uncontrolled, one test	52
Dichlorobenzenes	25321226	226	Woven fabric finishing	Tenter frames - resin finishing	330001	16 mg/kg fabric	Test at one plant	52
Dichlorobenzenes	25321226	226	Woven fabric finishing	Curing ovens - resin finish	330001	0.064 mg/kg fabric	Uncontrolled, one test	52

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Dichlorobenzenes	25321226	2869	Mono-, and dichlorobenzene production, direct chlorination	Absorption	30112535	0.001 g/kg produced	Control uncertain, based on tests and mass balance	95
Dichlorodibenzodioxin (total)	4953	2869	Sewage sludge incineration	Multiple hearth furnace	50100506	0.0695 ug/kg dry sludge	Average of two tests, scrubber	101
Dichlorodibenzofurans, total	4953	2869	Sewage sludge incineration	Multiple hearth furnace	50100506	0.2737 ug/kg dry sludge	Average of two tests, scrubber	101
Dichloroethane	75343	2869	Ethyl chloride production by hydrochlorination	Separation	301	6.0 g/kg produced	Control uncertain, based on mass balance and tests	95
Dichloroethane	75343	2869	Methyl chloroform production by hydrochlorination	Heat transfer	30112525	8.5 g/kg produced	Control uncertain, based on mass balance and tests	95
Dichloroethane	75343	2869	Methyl chloroform production by hydrochlorination	Separation	30112525	0.5 g/kg produced	Control uncertain, based on mass balance and tests	95
Dichloroethane, 1,1-	75343	2869	Ethylene dichloride production - oxyhydrochlorination	Separation	30117501	0.004 g/kg produced	Control unclear, based on mass balance and testing	95
Dichloroethane, 1,1-	75343	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	0.23 mg/kg dry sludge	One test, scrubber	101
Dichloroethene, 1,1-	75354	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	0.25 mg/kg dry sludge	One test, scrubber	101
Dichloroethylene, cis-	156592	2869	Perchloroethylene and trichloroethylene production	Oxychlorination process, distillation vent	301125	0.063 g/kg of PCE and TCE produced	Uncontrolled, based on data from one producer	1
Dichloroethylene, cis-	156592	2869	Perchloroethylene production	Chlorination of ethylene dichloride proc/neutralization & drying area vent	30112520	0.29 g/kg of PCE produced	Uncontrolled, based on data from one producer	1
Dichloroethylene, cis-	156592	2869	Perchloroethylene production	Chlorination of ethylene dichloride/distillation vent	30112521	0.043 g/kg of PCE produced	Uncontrolled, based on data from one producer	1
Dichloroethylene, trans-	156605	2869	Perchloroethylene and trichloroethylene production	Oxychlorination process, drying column vent	301125	0.65 g/kg of PCE and TCE produced	Uncontrolled, based on data from one producer	1
Dichloroethylene, trans-	156605	2869	Perchloroethylene and trichloroethylene production	Oxychlorination process, distillation vent	301125	0.225 g/kg of PCE and TCE produced	Uncontrolled, based on data from one producer	1
Dichloroethylene, trans-	156605	2869	Perchloroethylene production	Chlorination of ethylene dichloride proc/neutralization and drying area vent	30112520	1.1 g/kg of PCE produced	Uncontrolled, based on data from one producer	1

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Dichloroethylene, trans-	156605	2869	Perchloroethylene production	Chlorination of ethylene dichloride proc/distillation vent	3012521	0.075 g/kg of PCE produced	Uncontrolled, based on data from one producer	1
Dichloronitroaniline		226	Woven fabric finishing	Thermosol dyeing	330001	0.60 mg/kg fabric	Uncontrolled, one test	52
Dichloronitroaniline		226	Woven fabric finishing	Tenter frames - resin finish	330001	3.3 mg/kg fabric	Uncontrolled, one test	52
Dichloronitroaniline		226	Woven fabric finishing	Curing ovens - resin finish	330001	4.9 mg/kg fabric	Uncontrolled, average of two tests	52
Dichlorophenol, 2,4-	120832	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	<23 ug/kg dry sludge	One test, scrubber	101
Dichlorophenol, 2,4-	120832	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<36 ug/kg dry sludge	One test, scrubber	101
Dichlorophenol, 2,4-	120832	4953	Wastewater treatment	POTW	50100701	0.009 Mg/Mg 2,4-dichlorophenol in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	60
Dichloropropane	78875	2869	Propylene oxide production by chlorohydrination	Absorption	30120502	8.42 g/kg produced	Control unclear, based on mass balance and testing	95
Diethyl phthalate	84662	226	Woven fabric finishing	Thermosol dyeing	330001	0.0045 mg/kg fabric	Uncontrolled, average of two tests	52
Diethyl phthalate	84662	226	Woven fabric finishing	Tenter frames - resin finish	330001	0.34 mg/kg fabric	Uncontrolled, test data	52
Diethyl phthalate	84662	226	Woven fabric finishing	Heat setting	330001	0.25 mg/kg fabric	Uncontrolled, based on test data	52
Diethylene glycol methyl ether	111773	2869	Glycol ether production - methanol process	Vacuum system vent	30125302	0.063 g/kg glycol ether produced	Uncontrolled, approximation based on data from one plant	142
Dimethyl formamide	68122	4953	Wastewater treatment	POTW	50100701	0.04 Mg/Mg DMF in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Dimethyl phthalate	131113	226	Woven fabric finishing	Thermosol dyeing	330001	1.9 mg/kg fabric	Uncontrolled, average of two tests	52
Dimethyl phthalate	131113	226	Woven fabric finishing	Tenter frames - resin finish	330001	130 mg/kg fabric	Uncontrolled, test data	52
Dimethyl phthalate	131113	226	Woven fabric finishing	Curing ovens - resin finish	330001	21 mg/kg fabric	Uncontrolled, average of three tests	52
Dimethyl styrene		2865	Acetone/phenol manufacture from cumene	Cumene peroxidation vent	30102002	0.00005 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Dimethylphenol, 2,4-	105679	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	<17 ug/kg dry sludge	One test, scrubber	101
Dimethylphenol, 2,4-	105679	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<28 ug/kg dry sludge	One test, scrubber	101
Dimethylphenol, 2,4-	534521	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	<191 ug/kg dry sludge	One test, scrubber	101
Dimethylphenol, 2,4-	534521	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<47 ug/kg dry sludge	One test, scrubber	101
Dimethylphenol, 2,4-	51285	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<466 ug/kg dry sludge	One test, scrubber	101
Dioxane, 1,4-	123911	4953	Degreasing operations using methyl chloroform	Entire process	50100506	0.03 lb/ton methyl chloroform	Based on 33 wt. in methyl chloroform	93
Dioxins/dibenzofurans		4953	Municipal waste combustion	Existing mass burn heat recovery facility	501001	0.00096 g/Mg of waste combusted	Controlled by ESP, based on source tests, emissions = 2,3,7,8-TCDD equivalent	118
Dioxins/dibenzofurans		4953	Municipal waste combustion	Projected or state-of-the-art mass burn heat recovery facility	501001	0.00098 g/Mg of waste combusted	Controlled by ESP, based on source tests, emissions = 2,3,7,8-TCDD equivalent	118
Dioxins/dibenzofurans		4953	Municipal waste combustion	Mass burn nonheat recovery facility	501001	0.0031 g/Mg of waste combusted	Controlled by ESP, based on source tests, emissions = 2,3,7,8-TCDD equivalent	118
Dioxins/dibenzofurans		4953	Municipal waste combustion	Existing refuse-derived fuel facility	501001	0.002 g/Mg of waste combusted	Controlled by ESP, based on source tests, emissions = 2,3,7,8-TCDD equivalent	118
Dioxins/dibenzofurans		4953	Municipal waste combustion	Projected or state-of-the-art refuse-derived fuel facility	501001	0.0012 g/Mg of waste combusted	Controlled by ESP, based on source tests, emissions = 2,3,7,8-TCDD equivalent	118
Dioxins/dibenzofurans		4953	Municipal waste combustion	Modular facility	501001	0.00069 g/Mg of waste combusted	Controlled by ESP, based on source tests, emissions = 2,3,7,8-TCDD equivalent	118
Dioxins/dibenzofurans		4953	Municipal waste combustion	Existing mass burn heat recovery facility	501001	0.00006 g/Mg of waste combusted	Dry alk. scrubber & fabric filter contr., assumes 95% contr. effic., emis. = 2,3,7,8-TCDD equiv.	118
Dioxins/dibenzofurans		4953	Municipal waste combustion	Projected or state-of-the-art mass burn heat recovery facility	501001	0.000004 g/Mg of waste combusted	Dry alk. scrubber & fabric filter contr., assumes 95% contr. effic., emis. = 2,3,7,8-TCDD equiv.	118
Dioxins/dibenzofurans		4953	Municipal waste combustion	Mass burn nonheat recovery facility	501001	0.0002 g/Mg of waste combusted	Dry alk. scrubber & fabric filter contr., assumes 95% contr. effic., emis. = 2,3,7,8-TCDD equiv.	118

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Dioxins/dibenzofurans		4953	Municipal waste combustion	Existing refuse-derived fuel facility	501001	0.0001 g/kg of waste combusted	Dry alk. scrubber & fabric filter contr., assumes 95% contr. effic., emis. = 2,3,7,8-TCDF equiv.	118
Dioxins/dibenzofurans		4953	Municipal waste combustion	Projected or state-of-the-art refuse-derived fuel facility	501001	0.00008 g/kg of waste combusted	Dry alk. scrubber & fabric filter contr., assumes 95% contr. effic., emis. = 2,3,7,8-TCDF equiv.	118
Dioxins/dibenzofurans		4953	Municipal waste combustion	Modular facility	501001	0.000004 g/kg of waste combusted	Dry alk. scrubber & fabric filter contr., assumes 95% contr. effic., emis. = 2,3,7,8-TCDF equiv.	118
Diphenyl ethane	103297	226	Woven fabric finishing	Tenter frames - resin finish	330001	1.4 mg/kg fabric	Uncontrolled, one test	52
Diphenyl ethane	103297	226	Woven fabric finishing	Curing oven - resin finish	330001	3.1 mg/kg fabric	Uncontrolled, one test	52
Diphenyl oxide	101848	2865	Phthalic anhydride production - naphthalene process	Fugitives	301019	0.016 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Diphenyl oxide	101848	2865	Phthalic anhydride production - xylene process	Fugitives	301019	0.016 g/kg PA produced	Uncontrolled, heat transfer fluid	120
Dipropyl phthalate	131168	226	Woven fabric finishing	Thermosol dyeing	330001	0.003 mg/kg fabric	Uncontrolled, average of two tests	52
Dipropyl phthalate	131168	226	Woven fabric finishing	Tenter frames - resin finish	330001	0.021 mg/kg fabric	Uncontrolled, test data	52
Dipropyl phthalate	131168	226	Woven fabric finishing	Heat setting	330001	0.33 mg/kg fabric	Uncontrolled, based on test data	52
Divinyl benzene	1321740	226	Woven fabric finishing	Tenter frames - resin finish	330001	0.43 mg/kg fabric	Uncontrolled, average of two tests	52
Divinyl benzene	1321740	226	Woven fabric finishing	Curing ovens - resin finish	330001	0.64 mg/kg fabric	Uncontrolled, one test	52
Epichlorohydrin	106698	2800	Epichlorohydrin use as a feedstock in batch processes	Process vents	301	0.56 g/kg of epichlorohydrin used	Based on aggregate emissions and throughput estimates, represents no particular facility	109
Epichlorohydrin	106698	2800	Batch processes using epichlorohydrin as a feedstock	Storage facilities (include storage tanks and transfer operations)	301	0.47 g/kg of epichlorohydrin used	Based on aggregate emissions and throughput estimates, represents no particular facility	109
Epichlorohydrin	106698	2800	Batch processes using epichlorohydrin as a feedstock	Fugitive sources	301	7.10 g/kg of epichlorohydrin used	Based on aggregate emis. & throughput est., represents no partic. fac., based on SOCHI VOC emis. fac.	109
Epichlorohydrin	106698	2821	Production of epoxy resins (continuous process)	Vapor recovery system	30101847	0.005 g/kg of product	98% efficient control device, based on one facility only	109

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Epichlorohydrin	100498	2821	Production of epoxy resins (continuous process)	Storage emissions	30101047	0.3 g/kg of product	Control status unspecified, based on one plant's estimates	109
Epichlorohydrin	100498	2821	Production of epoxy resins (continuous process)	Storage emissions	30101047	0 g/kg of product	Tanks vented to balloon header, based on one plant's estimates	109
Epichlorohydrin	100498	2869	Propylene oxide production by chlorohydrin reaction	Absorption	30120502	1.54 g/kg produced	Control unclear, based on mass balance and testing	95
Epichlorohydrin	100498	2869	Epichlorohydrin production	Process vents	301305	0.00047 g/kg epichlorohydrin produced	Controlled, based on ratio of nationwide emis. totals & nationwide annual production rate	109
Epichlorohydrin	100498	2869	Epichlorohydrin production	Storage facilities (including storage tanks, transfer operations, etc.)	301305	0.15 g/kg epichlorohydrin produced	Control status unspecified, based on ratio of nationwide emis. totals & nationwide annual prod. rate	109
Epichlorohydrin	100498	2869	Epichlorohydrin production by hydrochlorination	Separation	30130501	1.5 g/kg produced	Control unclear, based on mass balance and testing	95
Epichlorohydrin	100498	2869	Epichlorohydrin production	Fugitive sources	30130500	0.62 g/kg epichlorohydrin produced	Uncontrolled, based on SOGHI VOC emission factors	109
Ethanol	64175	205	Bread baking	Processing sponge dough	30203201	5-8 lb/1000 lb bread	Uncontrolled	97
Ethanol	64175	205	Bread baking	Straight dough process	30203202	0.5 lb/1000 lb bread	Uncontrolled	97
Ethanol	64175	2004	Wine making	Fermentation	30201105	1.06 lb/1000 gal fermented	Uncontrolled, for a 32 degree Fahrenheit tank	97
Ethanol	64175	2004	Wine making	Fermentation	30201106	4.79 lb/1000 gal fermented	Uncontrolled, for a 80 degree Fahrenheit tank	97
Ethyl acrylate	140085	2869	Acrylic acid production - propylene oxidation	Quench absorber off-gas	30113222	1.2 kg/kg acrylic acid produced	Based on data from one plant	151
Ethyl benzene	100414	2491	Wood preserving	Thermal (pan) evaporation of pentachlorophenol wastewater		<5 mg/m ³ gas vented	Average value	6
Ethyl benzene	100414	2491	Wood preserving	Incineration of waste	307005	Not detectable	Controlled w/ baghouse	6
Ethyl benzene	100414	2865	Acetone/phenol manufacture from cumene	Cumene peroxidation vent	30102002	0.00042 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Ethyl benzene	100414	2865	Acetone/phenol manufacture from cumene	Cleavage section vents (combined)	30120211	5.0 x 10 ⁻⁷ g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average	125

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Ethyl benzene	100414	2911	Petroleum refinery	Fugitives	306	0.577 lb/yr	factors	
Ethyl benzene	100414	4953	Sludge incineration	Multiple hearth furnace	50100506	1.35 mg/kg dry sludge	Based on weighted emission stream content	92
Ethyl benzene	100414	4953	Sludge incineration	Fluidized-bed furnace	50100506	0.02 mg/kg dry sludge	Five tests, scrubber	101
Ethyl benzene	100414	4953	Wastewater treatment	POTW	50100701	0.50 Mg/kg ethyl benzene in influent	One test, scrubber	101
Ethyl benzene	100414	4953	Wastewater treatment	POTW	50100701	0.50 Mg/kg ethyl benzene in influent	Based on mls. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Ethyl benzene	100414	5541	Vehicle refueling	Vapor loss	40600301	0.009 g/gal of gas pumped	Listed as emission rate for ethylbenzene/2,3-dimethylheptane	4
Ethyl chloride	75003	2869	Ethyl chloride production by hydrochlorination	Separation	301	2.5 g/kg produced	Control uncertain, based on mass balance and tests	95
Ethyl chloride	75003	2869	Tetraethyl lead production	Process	301042	0.041 kg/kg tetraethyl lead produced	Based on Texas ACB Emission Inventory data for one source	65
Ethyl chloride	75003	2869	Tetraethyl lead production	Fugitive	301042	0.0000575 kg/kg of tetraethyl lead prod.	Based on one facility's response to a 1975 emission inventory questionnaire	65
Ethyl chloride	75003	2869	Acetaldehyde production	Off-gas vent	30112014	1.1 lb/1000 lb acetaldehyde	Controlled, low pressure scrubber, data from one plant	163
Ethyl chloride	75003	2869	Ethylene dichloride production	Process	301125	3.25 x 10 ⁻⁸ kg/kg EDC produced	Based on Texas ACB data for one source, partially controlled	65
Ethyl chloride	75003	2869	Ethylene dichloride production - oxyhydrochlorination	Separation	30112501	0.047 g/kg produced	Control unclear, based on mass balance and testing	95
Ethyl chloride	75003	2869	Ethylene dichloride production	Fugitive	30112509	4.77 x 10 ⁻⁶ kg/kg EDC produced	Based on Texas ACB data for one source	65
Ethyl chloride	75003	2869	Ethyl chloride production by hydrochlorination of ethylene	Process	30112515	0.00292 kg/kg produced	Control status unclear, based on Texas ACB Emission Inventory data for one source	65
Ethyl chloride	75003	2869	Ethyl chloride production by hydrochlorination of ethylene	Fugitive	30112515	29,606 kg/yr	Reported as very conservative estimate, based on SOCM emission factors	65

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Ethyl chloride	75003	2869	Ethyl chloride production by hydrochlorination of ethanol	Process	30112515	0.00292 kg/kg produced	Control status unclear, based on plant producing ethyl chloride by hydrochlorination of ethanol	65
Ethyl chloride	75003	2869	Ethyl chloride production by hydrochlorination of ethanol	Fugitive	30112515	29,606 kg/yr	Reported as very conservative estimate, based on SOOH emission factors	65
Ethyl chloride	75003	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	0.80 mg/kg dry sludge	One test, scrubber	101
Ethyl chloride	75003	4953	Wastewater treatment	POTW	50100701	0.67 Mg/Mg of ethyl chloride in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Ethyl styrene		226	Woven fabric finishing	Thermosol dyeing	330001	0.54 mg/kg fabric	Uncontrolled, one test	52
Ethyl styrene		226	Woven fabric finishing	Tenter frames - resin finish	330001	3.9 mg/kg fabric	Uncontrolled, average of two tests	52
Ethyl styrene		226	Woven fabric finishing	Curing ovens - resin finish	330001	4.6 mg/kg fabric	Uncontrolled, average of two tests	52
Ethylene	74851	2869	Ethylene dichloride production - direct chlorination	Absorption	30112502	3.10 g/kg produced	Control uncertain, based on tests and mass balance	95
Ethylene	74851	2869	Acetic anhydride production	Reaction by-product gas	30113302	1.5 g/kg acetic acid produced	Based on data from three plants	132
Ethylene	74851	2895	Carbon black manufacture - oil furnace	Main process vent	30100504	3.2 lb/ton carbon black produced	Based on test data	97
Ethylene dibromide	106934	421	Transport in tank trucks	Tank truck loaded with product - typical losses	406001	5.75 x 10E-6 mg/liter transported	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	421	Transport in tank trucks	Tank truck loaded with product - extreme losses	406001	5.75 x 10E-5 mg/liter transported	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	421	Transport in tank trucks	Tank truck unloaded - typical losses	406001	7.48 x 10E-5 mg/liter transported	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	421	Transport in tank trucks	Tank truck unloaded - extreme losses	406001	2.53 x 10E-4 mg/liter transported	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	4953	Wastewater treatment	POTW	50100701	0.74 mg/Mg of eth. dibromide in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Ethylene dibromide	106934	517	Gasoline loading of tank	Submerged loading - dedicated	404001	0.00679 mg/liter transferred	Calculated from gasoline vapor	50

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Ethylene dibromide	106934	517	trucks at bulk terminals	normal service	404001	0.0113 mg/liter transferred	estimates	50
Ethylene dibromide	106934	517	Gasoline loading of tank trucks at bulk terminals	Submerged loading - vapor balance service	404001	0.0164 mg/liter transferred	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	517	Gasoline loading of tank trucks at bulk terminals	Splash loading - dedicated normal service	404001	0.0113 mg/liter transferred	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	5171	Gasoline storage at bulk terminals	Splash loading - vapor balance service	404001	1.134 g/10E6 liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	5171	Gasoline storage at bulk terminals	Fixed-roof storage tanks - working losses	404001	0.292 g/10E6 liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	5171	Gasoline storage at bulk terminals	Fixed-roof storage tanks - breathing losses	404001	2.31 x 10E-7 g/10E6 liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	5171	Gasoline storage at bulk terminals	Floating-roof storage tanks - working losses	404001	0.319 g/10E6 liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	5171	Gasoline storage at bulk terminals	Floating-roof storage tanks - storage losses	404002	3.68 x 10E-7 mg/liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	5171	Gasoline storage at bulk plants	Storage tanks - filling losses	404002	7.02 x 10E-7 mg/liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	5171	Gasoline storage at bulk plants	Storage tanks - draining losses	404002	2.76 x 10E-7 mg/liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	5171	Gasoline loading of tank trucks at bulk plants	Splash loading - dedicated normal service	404002	0.0164 mg/liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	5171	Gasoline loading of tank trucks at bulk plants	Splash loading - vapor balance service	404002	0.0113 mg/liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	5171	Gasoline loading of tank trucks at bulk plants	Submerged loading - dedicated normal service	404002	0.00679 mg/liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	5171	Gasoline loading of tank trucks at bulk plants	Submerged loading - vapor balance service	404002	0.0113 mg/liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dibromide	106934	5541	Gasoline blending at refineries	Storage and handling of EOB and blended gasoline	403	0.014 mg/liter loaded gasoline produced	Engineering estimate using an emission factor for EOB	50, 51
Ethylene dibromide	106934	5541	Service stations	Tank breathing and emptying	406003	0.00156 mg/liter throughput	Calculated from gasoline vapor	97

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Ethylene dibromide	106934	5541	Service stations	Splash filling of underground tanks	4060301	0.0179 mg/liter throughput	estimates Calculated from gasoline vapor estimates	97
Ethylene dibromide	106934	5541	Service stations	Submerged filling of underground tanks	4060302	0.0114 mg/liter throughput	Calculated from gasoline vapor estimates	97
Ethylene dibromide	106934	5541	Service stations	Balanced submerged filling of underground tanks	4060306	0.00646 mg/liter throughput	Calculated from gasoline vapor estimates	97
Ethylene dibromide	106934	5541	Service stations	Refueling operations - displacement losses (uncontrolled)	406004	0.0172 mg/liter throughput	Calculated from gasoline vapor estimates	97
Ethylene dibromide	106934	5541	Service stations	Refueling operations - displacement losses (controlled)	406004	0.00372 mg/liter throughput	Calculated from gasoline vapor estimates	97
Ethylene dibromide	106934	5541	Service stations	Refueling operations - spillage	406004	0.00104 mg/liter throughput	Calculated from gasoline vapor estimates	97
Ethylene dichloride	107062		Mobile internal combustion sources	Motor vehicles	2	1.4 mg/liter of leaded gasoline burned	Calculated based on engineering judgment	51
Ethylene dichloride	107062	2821	Polyvinyl chloride production	Suspension process, entire plant	301018	4 x 10E-5 g/kg PVC	Based on a model plant, 1978 data, 60,000 Mg capacity, control status not certain	138
Ethylene dichloride	107062	2822	Polysulfide rubber production	Entire process	30102601	33.8 kg/Mg polysulfide rubber produced	Controlled, based on engineering judgment	51
Ethylene dichloride	107062	2869	Ethylene amine production	Entire process	301034	9.09 kg/Mg ethylene amine produced	Facilities using typical controls for 1976, aggregate est. based on national ems. & product. est.	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Column vents	301125	3.00 kg/Mg of EDC produced	Uncontrolled, based on hypothetical plant with total EDC production capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Storage vents, in-process	301125	0.0149 kg/Mg of EDC produced	Uncontrolled, based on hypothetical plant with total EDC production capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Storage vents, produced	301125	0.0735 kg/Mg of EDC produced	Uncontrolled, based on hypothetical plant with total EDC	51

POLLUTANT	CAS NUMBER	SJC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Process fugitive	301125	0.265 kg/Mg of EDC produced	production capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Secondary wastewater biotreatment	301125	0.002-0.06 kg/Mg of EDC produced	Uncontrolled, based on biotreater emission data reported by two EDC production facilities	51
Ethylene dichloride	107062	2869	Methyl chloroform production from vinyl chloride	Hydrochlorinator vent condenser	301125	8.5 kg/Mg of methyl chloroform prod.	Uncontrolled, basis unspecified	51
Ethylene dichloride	107062	2869	Methyl chloroform production from vinyl chloride	Steam stripper vent condenser	301125	0.5 kg/Mg of methyl chloroform prod.	Uncontrolled, basis unspecified	51
Ethylene dichloride	107062	2869	Methyl chloroform production from vinyl chloride	Hydrochlorinator vent	301125	<0.17 kg/Mg of methyl chloroform prod.	Controlled by incineration, calculated based on engineering judgement	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Column vents	301125	<0.0600 kg/Mg EDC produced	Controlled by thermal oxidizer, hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Storage vents, in-process	301125	<0.0003 kg/Mg EDC produced	Controlled by thermal oxidizer, hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Storage vents, in-process	301125	0.0022 kg/Mg EDC produced	Controlled by refrig. condens., based on hypothetical plant w/ total EDC produc. capacity of 400,000	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Storage vents, product	301125	<0.0015 kg/Mg EDC produced	Controlled by thermal oxidizer, hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Storage vents, product	301125	0.0110 kg/Mg EDC produced	Controlled by refrig. condens., hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Process fugitive	301125	0.106 kg/Mg EDC produced	Major leak detection and correction, hypothetical plant w/ total EDC produc. cap. of 400,000 Mg/yr	51

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Oxychlorination, air process, absorber/stripper	30112501	3.24-3.58 kg/Mg of EDC produced	Uncontrolled, based on hypothetical plant with total EDC production capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Oxychlorination, air process, refrigerated condenser	30112501	2.4 kg/Mg of EDC produced	Uncontrolled, based on hypothetical plant with total EDC production capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Oxychlorination, oxygen process	30112501	0.442 kg/Mg of EDC produced	Uncontrolled, based on hypothetical plant with total EDC production capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Oxychlorination, air process, absorber/stripper	30112501	<0.0648 kg/Mg EDC produced	Controlled by thermal oxidizer, hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Oxychlorination, air process, absorber/stripper	30112501	<0.280 kg/Mg EDC produced	Controlled by cataly. oxidizer, hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Oxychlorination, air process, refrigerated condenser	30112501	<0.0480 kg/Mg EDC produced	Controlled by thermal oxidizer, hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Oxychlorination, oxygen process	30112501	<0.0092 kg/Mg EDC produced	Controlled by thermal oxidizer, hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Oxychlorination, oxygen process	30112501	0.0693-0.17 kg/Mg EDC produced	Controlled by refrig. condens., hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Direct chlorination vent	30112502	1.08 kg/Mg of EDC produced	Uncontrolled, based on hypothetical plant with total EDC production capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Direct chlorination vent	30112502	<0.0216 kg/Mg EDC produced	Controlled by thermal oxidizer, hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride	107062	2869	Ethylene dichloride production - balanced process	Direct chlorination vent	30112502	0.162-0.26 kg/Mg EDC produced	Controlled by refrig. condens., hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Ethylene dichloride	107062	2869	Ethyl chloride production by hydrochlorination of ethylene	Process vents	30112515	9.45 kg/Mg ethyl chloride produced	Control status unspecified, aggregate estimate based on national emissions and production estimates	51
Ethylene dichloride	107062	2869	Perchloroethylene production	Chlorination or oxychlorination process	30112520	5 kg/Mg PCE produced	Controlled, aggregate estimate based on national emissions and production estimates	51
Ethylene dichloride	107062	2869	Perchloroethylene production	Hydrocarbon chlorinolysis process, hex waste handling	30112520	0.026 kg/Mg PCE and CCl ₄ produced	Uncontrolled, based on hypothetical plant producing 50,000 Mg/yr PCE & 30,000 Mg/yr carbon tet.	51
Ethylene dichloride	107062	2869	Perchloroethylene production	Hydrocarbon chlorinolysis process, hex waste handling	30112520	0.00026 kg/Mg PCE and CCl ₄ produced	Contr = vapor bal. syst. & carbon adsor./hypothetical plant prod. 50,000 Mg/yr PCE & 30,000 Mg/yr CT	51
Ethylene dichloride	107062	2869	Perchloroethylene production	Chlorination of ethylene dichloride proc/neutralization & drying area vent	30112520	3.1 g/kg of PCE produced	Uncontrolled, based on data from one producer	70
Ethylene dichloride	107062	2869	Methyl chloroform production from vinyl chloride	Distillation vents	30112528	0.18 g/kg methyl chloroform produced	Uncontrolled, based on hypothetical plant with 136,000 Mg/yr production capacity	70
Ethylene dichloride	107062	2869	Methyl chloroform production from vinyl chloride	Distillation vents	30112528	0.004 g/kg methyl chloroform produced	Controlled by incinerator, based on hypothetical plant with 136,000 Mg/yr production capacity	70
Ethylene dichloride	107062	2869	Methyl chloroform production from ethane	Distillation vents	30112528	0.069 g/kg methyl chloroform produced	Uncontrolled, based on hypothetical plant with 29,500 Mg/yr production capacity	70
Ethylene dichloride	107062	2869	Methyl chloroform production from ethane	Distillation vents	30112528	0.001 g/kg methyl chloroform produced	Controlled by incinerator, based on hypothetical plant with 29,500 Mg/yr production capacity	70
Ethylene dichloride	107062	2869	Trichloroethylene production	Entire process	30112530	5 kg/Mg TCE produced	Controlled, aggregate estimate based on national emissions and production estimates	51
Ethylene dichloride	107062	2869	Trichloroethylene production by oxyhydrochlorination process	Absorption	30112530	13.0 g/kg produced	Control unclear, based on mass balance and testing	95
Ethylene dichloride	107062	2869	Vinyl chloride monomer	Heavy ends from distillation	30112550	0.6-0.8 kg/Mg of vinyl	Uncontrolled, basis unspecified	51

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Ethylene dichloride	107062	2869	production	column	30112550	chloride produced	Controlled by thermal incineration, calculated based on engineering judgement	51
Ethylene dichloride	107062	2869	Vinyl chloride monomer production	Heavy ends from distillation column	30112551	40.016 kg/Mg of vinyl chloride produced	Controlled, aggregate estimate based on national emissions and production estimates	51
Ethylene dichloride	107062	2869	Vinylidene chloride production	Entire process	306	5.7 kg/Mg vinylidene chloride produced	Control status and basis unspecified	51
Ethylene dichloride	107062	2911	Blending of leaded gasoline	Storage/handling of EDC and blended product	306	1 kg/Mg of EDC used	Control status and basis unspecified	51
Ethylene dichloride	107062	2911	Blending of leaded gasoline	Storage/handling of EDC and blended product	403	0.16 mg/liter leaded gasoline produced	Control status and basis unspecified	51
Ethylene dichloride	107062	2911	Gasoline blending at refineries	Storage and handling of EDC and blended product	406001	0.16 mg/liter leaded gasoline produced	Number presented that was based on a review of literature	51
Ethylene dichloride	107062	421	Transport in tank trucks	Tank truck loaded with product - typical losses	406001	5.88 x 10E-5 mg/liter transported	Calculated from gasoline vapors estimates	50
Ethylene dichloride	107062	421	Transport in tank trucks	Tank truck loaded with product - extreme losses	406001	5.88 x 10E-4 mg/liter transported	Calculated from gasoline vapors estimates	50
Ethylene dichloride	107062	421	Transport in tank trucks	Tank truck unloaded - typical losses	406001	7.64 x 10E-4 mg/liter transported	Calculated from gasoline vapors estimates	50
Ethylene dichloride	107062	421	Transport in tank trucks	Tank truck unloaded - extreme losses	406001	2.59 x 10E-3 mg/liter transported	Calculated from gasoline vapors estimates	50
Ethylene dichloride	107062	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	0.9 mg/kg dry sludge	Two tests, scrubber, both isomers	101
Ethylene dichloride	107062	4953	Sewage sludge incineration	Fluidized bed furnace	50100506	0.005 mg/kg dry sludge	One test, scrubber, both isomers	101
Ethylene dichloride	107062	4953	Wastewater treatment	POTW	50100701	0.36 Mg/Mg ethylene dichlor. in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Ethylene dichloride	107062	517	Gasoline loading of tank trucks at bulk terminals	Submerged loading - dedicated normal service	406001	0.0603 mg/liter transferred	Calculated from gasoline vapors estimates	50
Ethylene dichloride	107062	517	Gasoline loading of tank trucks at bulk terminals	Submerged loading - vapor balance service	406001	0.115 mg/liter transferred	Calculated from gasoline vapors estimates	50
Ethylene dichloride	107062	517	Gasoline loading of tank trucks at bulk terminals	Spill loading - dedicated normal service	406001	0.168 mg/liter transferred	Calculated from gasoline vapors estimates	50

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Ethylene dichloride	107062	517	Gasoline loading of tank trucks at bulk terminals	Splash loading - vapor balance service	404001	0.115 mg/liter transferred	Calculated from gasoline vapors estimates	50
Ethylene dichloride	107062	517	Gasoline loading of tank car/truck with leaded gasoline	Splash loading normal service	40600136	0.269 mg/liter transferred	Uncontrolled, calculated based on engineering judgement	51
Ethylene dichloride	107062	517	Gasoline loading of tank car/truck with leaded gasoline	Splash loading balance service	40600144	0.192 mg/liter transferred	Uncontrolled, calculated based on engineering judgement	51
Ethylene dichloride	107062	5171	Gasoline storage at bulk terminals	Fixed-roof storage tanks - working losses	404001	0.0116 kg/10E6 liter throughput	Calculated from gasoline vapors estimates	50
Ethylene dichloride	107062	5171	Gasoline storage at bulk terminals	Fixed-roof storage tanks - breathing losses	404001	2.98 g/10E6 liter throughput	Calculated from gasoline vapors estimates	50
Ethylene dichloride	107062	5171	Gasoline storage at bulk terminals	Floating-roof storage tanks - working losses	404001	0.00236 mg/10E6 liter throughput	Calculated from gasoline vapors estimates	50
Ethylene dichloride	107062	5171	Gasoline storage at bulk terminals	Floating-roof storage tanks - storage losses	404001	3.25 g/10E6 liter throughput	Calculated from gasoline vapors estimates	50
Ethylene dichloride	107062	5171	Gasoline storage at bulk plants	Storage tanks - breathing loss	404002	3.76 x 10E-6 mg/liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dichloride	107062	5171	Gasoline storage at bulk plants	Storage tanks - filling losses	404002	7.17 x 10E-6 mg/liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dichloride	107062	5171	Gasoline storage at bulk plants	Storage tanks - draining losses	404002	2.82 x 10E-6 mg/liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dichloride	107062	5171	Gasoline loading of tank trucks at bulk plants	Splash loading - dedicated normal service	404002	0.168 mg/liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dichloride	107062	5171	Gasoline loading of tank trucks at bulk plants	Splash loading - vapor balance service	404002	0.115 mg/liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dichloride	107062	5171	Gasoline loading of tank trucks at bulk plants	Submerged loading - dedicated normal service	404002	0.069 mg/liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dichloride	107062	5171	Gasoline loading of tank trucks at bulk plants	Submerged loading - vapor balance service	404002	0.115 mg/liter throughput	Calculated from gasoline vapor estimates	50
Ethylene dichloride	107062	5541	Service stations	Tank breathing and emptying	406003	0.0159 mg/liter throughput	Calculated from gasoline vapor estimates	97
Ethylene dichloride	107062	5541	Service stations	Filling underground tank (splash filling), leaded	40600301	0.26 mg/liter transferred	Uncontrolled, calculated based on engineering judgement	51

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Ethylene dichloride	107062	5541	Service stations	gasoline				
				Splash filling of underground tanks	40600301	0.183 mg/liter throughput	Calculated from gasoline vapor estimates	97
Ethylene dichloride	107062	5541	Service stations	Submerged filling of underground tanks	40600302	0.117 mg/liter throughput	Calculated from gasoline vapor estimates	97
Ethylene dichloride	107062	5541	Service stations	Balanced submerged filling of underground tanks	40600306	0.0553 mg/liter throughput	Calculated from gasoline vapor estimates	97
Ethylene dichloride	107062	5541	Service stations	Refueling operations - displacement losses (uncontrolled)	406004	0.175 mg/liter throughput	Calculated from gasoline vapor estimates	97
Ethylene dichloride	107062	5541	Service stations	Refueling operations - displacement losses (controlled)	406004	0.0175 mg/liter throughput	Calculated from gasoline vapor estimates	97
Ethylene dichloride	107062	5541	Service stations	Refueling operations - spillage	406004	0.0106 mg/liter throughput	Calculated from gasoline vapor estimates	97
Ethylene dichloride	107062	5541	Service stations	Vehicle refueling operations, spillage	40600402	0.016 mg/liter of leaded gas transferred	Uncontrolled, calculated based on engineering judgement	51
Ethylene dichloride	107062	5541	Service stations	Vehicle refueling operations, displacement losses	40600403	0.21 mg/liter leaded gasoline transfer	Uncontrolled, calculated based on engineering judgement	51
Ethylene dichloride	107062	5541	Service stations	Vehicle refueling operations, displacement losses	40600403	0.021 mg/liter of leaded gas transferred	Controlled, calculated based on engineering judgement	51
Ethylene glycol	107211	4741	Rail tank car cleaning	Entire process	490003	0.0007 lb/tank car	Emission measurement	97
Ethylene glycol methyl ether	109864	2869	Glycol ether production - methanol process	Vacuum system vent	30125302	0.094 g/kg glycol ether produced	Uncontrolled, approximation based on data from one plant	142
Ethylene oxide	75218	20	Foodstuff fumigation	Process vents		0.20 lb/lb ethylene oxide used	Uncontrolled, based on source tests	64
Ethylene oxide	75218	20	Foodstuff fumigation	Wastewater		0.5 lb/lb ethylene oxide used	Uncontrolled, based on source tests	64
Ethylene oxide	75218	20	Foodstuff fumigation	Fugitive		0.30 lb/lb ethylene oxide used	Uncontrolled, based on source tests	64
Ethylene oxide	75218	20	Foodstuff fumigation, with recycling water-sealed pump	Process		0.70 lb/lb ethylene oxide used	Uncontrolled, based on source tests	64
Ethylene oxide	75218	20	Foodstuff fumigation, with recycling water-sealed pump	Fugitive		0.30 lb/lb ethylene oxide used	Uncontrolled, based on source tests	64

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Ethylene oxide	75218	2869	Ethylene oxide production by oxygen-oxidation process	Storage/handling	301174	2.6 g/kg	Uncontrolled, based on engineering judgement for hypothetical plants	63
Ethylene oxide	75218	2869	Ethylene oxide production by oxygen-oxidation process	Storage/handling	301174	0 g/kg	Controlled by aqueous scrubber, based on engineering judgement for hypothetical plants	63
Ethylene oxide	75218	2869	Ethylene oxide production by oxygen-oxidation process	Cooling towers	301174	0.07 g/kg	Uncontrolled, based on engineering judgement for hypothetical plants	63
Ethylene oxide	75218	2869	Ethylene oxide production by oxygen-oxidation process	Cooling towers	301174	0.014 g/kg	Increased stripper column effectiveness, based on engineering judgement for hypothetical plants	63
Ethylene oxide	75218	2869	Ethylene oxide production by air-oxidation process	Storage/handling	301174	2.6 g/kg	Uncontrolled, based on source tests	63
Ethylene oxide	75218	2869	Ethylene oxide production by air-oxidation process	Storage/handling	301174	0 g/kg	Controlled by recycle or scrubber with incineration or flaring, based on source tests	63
Ethylene oxide	75218	2869	Ethylene oxide production by air-oxidation process	Purge absorber vent	30117402	0.005-1 g/kg	Uncontrolled, based on source tests	63
Ethylene oxide	75218	2869	Ethylene oxide production by air-oxidation process	Purge absorber vent	30117402	0 g/kg	Controlled by catalytic oxidation or emergency flare, based on source tests	63
Ethylene oxide	75218	2869	Ethylene oxide production by air-oxidation process	Purge absorber vent	30117402	0.04 g/kg	Controlled 80 percent by thermal oxidation, based on source tests	63
Ethylene oxide	75218	2869	Ethylene oxide production by oxygen-oxidation process	Carbon dioxide desorber vent	30117410	0.00006-0.75 g/kg	Uncontrolled, based on engineering judgement for hypothetical plants	63
Ethylene oxide	75218	2869	Ethylene oxide production by oxygen-oxidation process	Carbon dioxide desorber vent	30117410	0.06 g/kg	Controlled by carbonate flasher/vent condenser, based on engineering judgement for hypothetical plants	63
Ethylene oxide	75218	2869	Ethylene oxide production by oxygen-oxidation process	Carbon dioxide desorber vent	30117410	0 g/kg	Controlled by CO2 recovery or methanol unit, based on engineering judgement for hypothetical plants	63
Ethylene oxide	75218	2869	Ethylene oxide production by oxygen-oxidation process	Main process purge vent	30117411	0.001-0.002 g/kg	Uncontrolled, based on engineering judgement for hypothetical plants	63

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Ethylene oxide	75218	2869	Ethylene oxide production by oxygen-oxidation process	Main process purge vent	30117411	0 g/kg	Controlled by boiler or incinerator, based on engineering judgement for hypothetical plants	63
Ethylene oxide	75218	2869	Ethylene oxide production by oxygen-oxidation process	Stripper vent	30117421	<0.1 g/kg	Uncontrolled, based on engineering judgement for hypothetical plants	63
Ethylene oxide	75218	2869	Ethylene oxide production by oxygen-oxidation process	Stripper vent	30117421	<0.002 g/kg	Controlled by various reabsorbers/incin./water scrubbers/vent absorbers, based on eng. judgement	63
Ethylene oxide	75218	2869	Ethylene oxide production by air-oxidation process	Stripper vent	30117421	<0.7 g/kg	Uncontrolled, based on source tests	63
Ethylene oxide	75218	2869	Ethylene oxide production by air-oxidation process	Stripper vent	30117421	0 g/kg	Controlled by boiler, based on source tests	63
Ethylene oxide	75218	8062	Hospital sterilization	Process vents	31502001	0.25 lb/lb ethylene oxide used	Uncontrolled, based on source tests	64
Ethylene oxide	75218	8062	Hospital sterilization	Wastewater	31502001	0.55 lb/lb ethylene oxide used	Uncontrolled, based on source tests	64
Ethylene oxide	75218	8062	Hospital sterilization	Fugitive	31502001	0.20 lb/lb ethylene oxide used	Uncontrolled, based on source tests	64
Ethylene oxide	75218	8062	Hospital sterilization	Process vents	31502001	0.33 lb/lb hospital bed	Uncontrolled, based on source tests, inappropriate to use this factor for individual hospitals	64
Ethylene oxide	75218	8062	Hospital sterilization	Wastewater	31502001	0.72 lb/lb hospital bed	Uncontrolled, based on source tests, inappropriate to use this factor for individual hospitals	64
Ethylene oxide	75218	8062	Hospital sterilization	Fugitive	31502001	0.26 lb/lb hospital bed	Uncontrolled, based on source tests, inappropriate to use this factor for individual hospitals	64
Ethylene oxide	75218	8062	Hospital sterilization	Process vents	31502001	0.19 lb/lb ethylene oxide purchased	Uncontrolled, based on source tests	64
Ethylene oxide	75218	8062	Hospital sterilization	Wastewater	31502001	0.42 lb/lb ethylene oxide purchased	Uncontrolled, based on source tests	64
Ethylene oxide	75218	8062	Hospital sterilization	Fugitive	31502001	0.15 lb/lb ethylene oxide purchased	Uncontrolled, based on source tests	64
Ethylene oxide	75218	8062	Hospital sterilizer, table-top	Process	31502001	0.80 lb/lb ethylene oxide used	Uncontrolled, based on engineering judgement	64

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Ethylene oxide	75218	8062	Hospital sterilizer, table-top	Fugitive	31502001	0.20 lb/lb ethylene oxide used	Uncontrolled, based on engineering judgement	64
Ethylene oxide	75218	8062	Hospital sterilizer, table-top	Process	31502001	0.62 lb/lb ethylene oxide purchased	Uncontrolled, based on engineering judgement	64
Ethylene oxide	75218	8062	Hospital sterilizer, table-top	Fugitive	31502001	0.15 lb/lb ethylene oxide purchased	Uncontrolled, based on engineering judgement	64
Ethylhexanol, 2-	123057	226	Woven fabric finishing	Thermosol dyeing	330001	2.1 mg/kg fabric	Uncontrolled, one test	52
Fluoride	16984488	2574	Normal superphosphate production	Curing building	30102806	3.8 lb/ton P205	Uncontrolled	97
Fluoride	16984488	2574	Triple superphosphate production - run of pile	Cone mixer, den and curing building	30102905	0.2 lb/ton P205	Wet scrubber (97%), based on test data	97
Fluoride	16984488	2574	Granular triple superphosphate	Reactor, granulator, dryer, cooler and screens	30102906	0.24 lb/ton P205	Wet scrubber (97%), based on test data	97
Fluoride	16984488	2574	Granular triple superphosphate	Curing building	30102907	0.04 lb/ton P205	Wet scrubber (97%), based on test data	97
Fluoride	16984488	2574	Ammonium phosphate production	Dryer/cooler	30103001	0.03 lb/ton P205	Controlled (not specified)	97
Fluoride	16984488	2574	Ammonium phosphate production	Reactor/ammoniator-granulator	30103002	0.05 lb/ton P205	Controlled (not specified)	97
Fluoride	16984488	2574	Ammonium phosphate production	Product sizing and material transfer	30103003	0.01 lb/ton P205	Controlled (not specified)	97
Fluoride	16984488	2874	Normal superphosphate production	Mixer and den	30102805	0.2 lb/ton P205	Wet scrubber (97%)	97
Fluoride	16984488	3334	Primary aluminum production	Prebake cell	30300101	6.7 lb/ton molten Al product	Gaseous fluoride, based on test data, cross flow packed bed scrubber	97
Fluoride	16984488	3334	Primary aluminum production	Prebake cell	30300101	5.6 lb/ton molten Al product	Particulate fluoride, based on test data, cross flow packed bed scrubber	97
Fluoride	16984488	3334	Primary aluminum production	Prebake cell	30300101	0.4 lb/ton molten Al product	Gaseous fluoride, based on test data, dry plus secondary scrubber	97
Fluoride	16984488	3334	Primary aluminum production	Prebake cell	30300101	0.3 lb/ton molten Al product	Particulate fluoride, based on test data, dry plus secondary scrubber	97

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Fluoride	16984-488	3334	Primary aluminum production	Prebake cell	30300101	1.4 lb/ton molten Al product	Gaseous fluoride, based on test date, dry ESP and spray tower	97
Fluoride	16984-488	3334	Primary aluminum production	Prebake cell	30300101	3.4 lb/ton molten Al product	Particulate fluoride, based on test date, dry ESP and spray tower	97
Fluoride	16984-488	3334	Primary aluminum production	Prebake cell	30300101	1.4 lb/ton molten Al product	Gaseous fluoride, based on test date, spray tower	97
Fluoride	16984-488	3334	Primary aluminum production	Prebake cell	30300101	3.8 lb/ton molten Al product	Particulate fluoride, based on test date, spray tower	97
Fluoride	16984-488	3334	Primary aluminum production	Prebake cell	30300101	0.5 lb/ton molten Al product	Gaseous fluoride, based on test date, floating bed scrubber	97
Fluoride	16984-488	3334	Primary aluminum production	Prebake cell	30300101	3.8 lb/ton molten Al product	Particulate fluoride, based on test date, floating bed scrubber	97
Fluoride	16984-488	3334	Primary aluminum production	Prebake cell	30300101	3.4 lb/ton molten Al product	Gaseous fluoride, based on test date, coated bag filter dry scrubber	97
Fluoride	16984-488	3334	Primary aluminum production	Prebake cell	30300101	0.4 lb/ton molten Al product	Particulate fluoride, based on test date, coated bag filter dry scrubber	97
fluoride	16984-488	3334	Primary aluminum production	Prebake cell	30300101	24.0 lb/ton molten Al product	Uncontrolled, gaseous fluoride, based on test date	97
Fluoride	16984-488	3334	Primary aluminum production	Prebake cell	30300101	20.0 lb/ton molten Al product	Uncontrolled, particulate fluoride, based on test date	97
Fluoride	16984-488	3334	Primary aluminum production	Prebake cell	30300101	22.8 lb/ton molten Al product	Gaseous fluoride, based on test date, emissions to collector	97
Fluoride	16984-488	3334	Primary aluminum production	Prebake cell	30300101	19.0 lb/ton molten Al product	Particulate fluoride, based on test date, emissions to collector	97
Fluoride	16984-488	3334	Primary aluminum production	Prebake cell	30300101	22.8 lb/ton molten Al product	Gaseous fluoride, based on test date, multiple cyclone	97
Fluoride	16984-488	3334	Primary aluminum production	Prebake cell	30300101	4.2 lb/ton molten Al product	Particulate fluoride, based on test date, multiple cyclone	97
Fluoride	16984-488	3334	Primary aluminum production	Prebake cell	30300101	0.2 lb/ton molten Al product	Gaseous fluoride, based on test date, dry alumina scrubber	97
Fluoride	16984-488	3334	Primary aluminum production	Prebake cell	30300101	0.4 lb/ton molten Al product	Particulate fluoride, based on test date, dry alumina scrubber	97

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300102	22 lb/ton molten Al product	test data, dry alumina scrubber	97
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300102	12 lb/ton molten Al product	Uncontrolled, gaseous fluoride, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300102	19.8 lb/ton molten Al product	Uncontrolled, particulate fluoride, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300102	10.8 lb/ton molten Al product	Gaseous fluoride, emissions to collector, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300102	7.5 lb/ton molten Al product	Particulate fluoride, emissions to collector, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300102	2.7 lb/ton molten Al product	Gaseous fluoride, spray tower, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300102	0.4 lb/ton molten Al product	Particulate fluoride, spray tower, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300102	2.4 lb/ton molten Al product	Particulate fluoride, floating bed scrubber, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300102	0.2 lb/ton molten Al product	Particulate, floating bed scrubber, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300102	0.2 lb/ton molten Al product	Gaseous, scrubber plus ESP, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300102	1.0 lb/ton molten Al product	Particulate, scrubber plus ESP, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300102	0.2 lb/ton molten Al product	Gaseous, wet ESP, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300102	0.4 lb/ton molten Al product	Particulate, wet ESP, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300102	0.2 lb/ton molten Al product	Gaseous, dry alumina scrubber, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300102	0.2 lb/ton molten Al product	Particulate, dry alumina scrubber, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Vertical Soderberg stud cell	30300103	33 lb/ton molten Al product	Uncontrolled, gaseous fluoride, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Vertical Soderberg stud cell	30300103	11 lb/ton molten Al product	Uncontrolled, particulate	97

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Fluoride	16984488	3334	Primary aluminum production	Vertical Soderberg stud cell	30300103	0.3 lb/ton molten Al product	fluoride, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Vertical Soderberg stud cell	30300103	0.2 lb/ton molten Al product	Gaseous fluoride, dry alumina scrubber, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Vertical Soderberg stud cell	30300103	1.5 lb/ton molten Al product	Particulate fluoride, dry alumina scrubber, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Vertical Soderberg stud cell	30300103	1.3 lb/ton molten Al product	Gaseous fluoride, scrubber + ESP + spray screen + scrubber, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Vertical Soderberg stud cell	30300103	28.1 lb/ton molten Al product	Particulate fluoride, scrubber + ESP + spray screen + scrubber, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Vertical Soderberg stud cell	30300103	9.3 lb/ton molten Al product	Emissions to collector, gaseous fluoride, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Vertical Soderberg stud cell	30300103	0.3 lb/ton molten Al product	Emissions to collector, gaseous fluoride, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Vertical Soderberg stud cell	30300103	2.3 lb/ton molten Al product	Gaseous fluoride, spray tower, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Vertical Soderberg stud cell	30300103	0.3 lb/ton molten Al product	Particulate fluoride, spray tower, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Vertical Soderberg stud cell	30300103	0.4 lb/ton molten Al product	Gaseous fluoride, venturi scrubber, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Vertical Soderberg stud cell	30300103	28.1 lb/ton molten Al product	Particulate fluoride, venturi scrubber, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Vertical Soderberg stud cell	30300103	4.7 lb/ton molten Al product	Gaseous fluoride, multiple cyclones, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Anode baking furnace	30300105	0.9 lb/ton molten Al product	Particulate fluoride, multiple cyclones, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Anode baking furnace	30300105	0.1 lb/ton molten Al product	Uncontrolled, gaseous fluoride, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Anode baking furnace	30300105	0.04 lb/ton molten Al product	Uncontrolled, particulate fluoride, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Anode baking furnace	30300105	0.04 lb/ton molten Al product	Gaseous fluoride, based on test data, spray tower	97

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Fluoride	16984488	3334	Primary aluminum production	Anode baking furnace	30300105	0.03 lb/ton molten Al product	Particulate fluoride, based on test data, spray tower	97
Fluoride	16984488	3334	Primary aluminum production	Anode baking furnace	30300105	0.04 lb/ton molten Al product	Gaseous fluoride, based on test data, ESP	97
Fluoride	16984488	3334	Primary aluminum production	Anode baking furnace	30300105	0.03 lb/ton molten Al product	Particulate fluoride, based on test data, ESP	97
Fluoride	16984488	3334	Primary aluminum production	Anode baking furnace	30300105	0.009 lb/ton molten Al product	Gaseous fluoride, based on test data, dry alumina scrubber	97
Fluoride	16984488	3334	Primary aluminum production	Anode baking furnace	30300105	0.002 lb/ton molten Al product	Particulate fluoride, based on test data, dry alumina scrubber	97
Fluoride	16984488	3334	Primary aluminum production	Prebake cell/fugitives	30300108	1.2 lb/ton molten Al product	Gaseous fluoride, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Prebake cell/fugitives	30300108	1.0 lb/ton molten Al product	Particulate fluoride, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300109	2.2 lb/ton molten Al product	Gaseous fluoride, fugitive, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Horizontal Soderberg stud cell	30300109	1.2 lb/ton molten Al product	Particulate fluoride, fugitive, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Vertical Soderberg stud cell	30300110	4.9 lb/ton molten Al product	Fugitives, gaseous fluoride, based on test data	97
Fluoride	16984488	3334	Primary aluminum production	Vertical Soderberg stud cell	30300110	1.7 lb/ton molten Al product	Fugitives, particulate fluoride, based on test data	97
Fluorides	2899		Frit smelting	Rotary furnace	30501301	5 lb/ton charge	Uncontrolled	97
Fluorides	3229		Glass fiber manufacture	Textile glass furnace	305012	1 kg/Mg raw material processed	Uncontrolled, based on limited test data	97
Fluorides	3251		Brick manufacture	Kiln	305003	1 lb/ton brick produced	Uncontrolled, applies to tunnel or periodic kiln, gas, oil, or coal fired	97
Fluorides	3296		Glass fiber manufacture	Wool glass furnace - gas	305012	0.06 kg/Mg raw material processed	Uncontrolled, based on limited test data	97
Fluorides	3296		Glass fiber manufacture	Wool glass furnace - electric	30501203	0.001 kg/Mg raw material processed	Uncontrolled, based on limited test data	97

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Fluorine	7782414	2874	Phosphoric acid production - wet process	Reactor	30101601	56.4 lb/ton	Uncontrolled, based on mass balance	97
Fluorine	7782414	2874	Phosphoric acid production - wet process	Gypsum settling ponds	30101602	1.12 lb/ton acid	0.7 acres of pond needed to produce 1 ton acid	97
Fluorine	7782414	2874	Phosphoric acid production - wet process	Condenser	30101603	61.2 lb/ton acid	Uncontrolled, based on mass balance	97
Formaldehyde	50000		Wood combustion, residential	Woodstoves		0.48 lb/ton of wood burned	Uncontrolled, based on source test	58
Formaldehyde	50000		Wood combustion, residential	Fireplaces		3.0 lb/ton of wood burned	Uncontrolled, based on source test	58
Formaldehyde	50000		Wood combustion, residential	Small airtight woodstoves, birch wood		57.8 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Formaldehyde	50000		Wood combustion, residential	Small airtight woodstoves, birch wood		1722 mg/kg dry fuel burned	Starved air conditions, based on emission tests	57
Formaldehyde	50000		Wood combustion, residential	Small airtight woodstoves, spruce wood		41.4 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Formaldehyde	50000		Wood combustion, residential	Small airtight woodstoves, spruce wood		255 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Formaldehyde	50000		Asphalt plants	Entire process		0.00015 lb/ton asphalt produced	Control uncertain	94
Formaldehyde	50000		Oil combustion	Oil-fired boiler or furnace, util./commerc./industr./residential	1	405 lb/10E12 Btu	Uncontrolled, based on emissions testing	36
Formaldehyde	50000		Coal combustion	Coal-fired boilers or furnaces, util./commerc./industr./residential	1	170.5 lb/10E12 Btu	Uncontrolled, based on measured emis. factors, insurf. data to characterize emis. by boiler type	36
Formaldehyde	50000		Natural gas combustion	Domestic	1	0.43 ng/J heat input	Control status unspecified, based on source tests	106
Formaldehyde	50000		Natural gas combustion	Industrial	102006	0.038 ng/J heat input	Control status unspecified, based on source tests	106
Formaldehyde	50000		Wood combustion	Industrial	102009	0.48 lb/ton	Uncontrolled, based on emission factor for residential woodstoves	94
Formaldehyde	50000		Natural gas combustion	Commercial/institutional	103006	0.095 ng/J heat input	Control status unspecified, based	106

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Formaldehyde	50000		Wood combustion	Commercial	103009	0.48 lb/ton	on source tests	94
Formaldehyde	50000		Stationary internal combustion engines	Gas turbines	2	4.0 ng/Joule heat input	Uncontrolled, based on emission factor for residential woodstoves	106
Formaldehyde	50000		Stationary internal combustion engines	Gas-fired reciprocating engines	2	5.7 ng/Joule heat input	Uncontrolled, calculated based on engineering judgement	106
Formaldehyde	50000		Mobile internal combustion sources	Automobiles (catalyst)	2	2 - 32 mg/km	Uncontrolled, calculated based on engineering judgement	106
Formaldehyde	50000		Mobile internal combustion sources	Automobiles (catalyst)	2	0.05-0.83 g/gal	Based on emiss. test data, use lower value for low mileage cars & higher value for high mileage cars	106
Formaldehyde	50000		Mobile internal combustion sources	Automobiles (nontcatalyst)	2	32 mg/km	Based on emiss. test data, use lower value for low mileage cars & higher value for high mileage cars	106
Formaldehyde	50000		Mobile internal combustion sources	Automobiles (nontcatalyst)	2	0.83 g/gal	Based on emiss. test data, use lower value for low mileage cars & higher value for high mileage cars	106
Formaldehyde	50000		Mobile internal combustion sources	Automobiles (diesel)	2	13 mg/km	Based on emiss. test data, use lower value for low mileage cars & higher value for high mileage cars	106
Formaldehyde	50000		Mobile internal combustion sources	Automobiles (diesel)	2	0.33 g/gal	Based on emiss. test data, use lower value for low mileage cars & higher value for high mileage cars	106
Formaldehyde	50000		Mobile internal combustion sources	Heavy-duty gasoline vehicles	2	76 mg/km	Based on emiss. test data, use lower value for low mileage cars & higher value for high mileage cars	106
Formaldehyde	50000		Mobile internal combustion sources	Heavy-duty gasoline vehicles	2	0.64 g/gal	Based on emiss. test data, use lower value for low mileage cars & higher value for high mileage cars	106
Formaldehyde	50000		Mobile internal combustion sources	Heavy-duty diesel vehicles	2	55 mg/km	Based on emiss. test data, use lower value for low mileage cars & higher value for high mileage cars	106

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Formaldehyde	50000		Mobile internal combustion sources	Heavy-duty diesel vehicles	2	0.55 g/gal	Based on emis. test data, use lower value for low mileage cars & higher value for high mileage cars	106
Formaldehyde	50000		Mobile internal combustion sources	Motorcycles, 2-cycle	2	41 mg/km	Derived from total aldehyde emissions data	106
Formaldehyde	50000		Mobile internal combustion sources	Motorcycles, 2-cycle	2	3.3 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000		Mobile internal combustion sources	Motorcycles, 4-cycle	2	17 mg/km	Derived from total aldehyde emissions data	106
Formaldehyde	50000		Mobile internal combustion sources	Motorcycles, 4-cycle	2	1.4 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000		Mobile internal combustion sources	Snowmobiles	2	5.9 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000		Mobile internal combustion sources	Turbo prop or piston aircraft	2	1.6 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000		Stationary internal combustion engines	Line and diesel-powered industrial equipment	202	13.2 mg/Joule heat input	Uncontrolled, calculated based on engineering judgement	106
Formaldehyde	50000	01	Mobile internal combustion sources	Gasoline powered farm equipment, tractor	2	1.9 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	01	Mobile internal combustion sources	Gasoline powered farm equipment, miscellaneous	2	1.1 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	01	Mobile internal combustion sources	Diesel powered farm equipment, tractor	2	3.3 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	01	Mobile internal combustion sources	Diesel powered farm equipment, miscellaneous	2	2.8 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	16	Mobile internal combustion sources	Gasoline powered construction equipment, roller	2	1.3 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	16	Mobile internal combustion sources	Gasoline powered construction equipment, miscellaneous	2	1.2 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	16	Mobile internal combustion sources	Diesel powered construction equipment, tracklaying tractor	2	1.7 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	16	Mobile internal combustion sources	Diesel powered construction equipment, wheeled tractor	2	2.8 g/gal	Derived from total aldehyde emissions data	106

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Formaldehyde	50000	16	Mobile internal combustion sources	Diesel powered construction equipment, wheeled dozer	2	1.6 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	16	Mobile internal combustion sources	Diesel powered construction equipment, scraper	2	2.6 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	16	Mobile internal combustion sources	Diesel powered construction equipment, motor grader	2	1.2 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	16	Mobile internal combustion sources	Diesel powered construction equipment, wheeled loader	2	2.0 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	16	Mobile internal combustion sources	Diesel powered construction equipment, tracklaying loader	2	1.0 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	16	Mobile internal combustion sources	Diesel powered construction equipment, off-highway truck	2	2.1 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	16	Mobile internal combustion sources	Diesel powered construction equipment, roller	2	1.7 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	16	Mobile internal combustion sources	Gasoline powered construction equipment, wheeled tractor	2	1.6 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	16	Mobile internal combustion sources	Gasoline powered construction equipment, motor grader	2	1.6 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	16	Mobile internal combustion sources	Gasoline powered construction equipment, wheeled loader	2	1.3 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	16	Mobile internal combustion sources	Diesel powered construction equipment, miscellaneous	2	1.8 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	2821	Polycetal resin production	Process	301018	0.09-0.37 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or the types of control involved	106
Formaldehyde	50000	2821	Polycetal resin production	Formaldehyde storage	301018	0.02-0.03 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or the types of control involved	106
Formaldehyde	50000	2821	Phenol-formaldehyde resin production	Process	30101805	0.15-1.5 kg/Mg of 37% formaldehyde used	Uncontrolled, basis unclear	106
Formaldehyde	50000	2821	Phenol-formaldehyde resin production	Formaldehyde storage	30101805	0.03-0.2 kg/Mg of 37% formaldehyde used	Uncontrolled, basis unclear	106

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Formaldehyde	50000	2821	Urea-formaldehyde resin production	Process	30101832	0.15-1.5 kg/Mg of 37% formaldehyde used	Uncontrolled, basis unclear	106
Formaldehyde	50000	2821	Urea-formaldehyde resin production	Formaldehyde storage	30101832	0.03-0.2 kg/Mg of 37% formaldehyde used	Uncontrolled, basis unclear	106
Formaldehyde	50000	2821	Melamine-formaldehyde resin production	Process	30101842	0.15-1.5 kg/Mg of 37% formaldehyde used	Uncontrolled, basis unclear	106
Formaldehyde	50000	2821	Melamine-formaldehyde resin production	Formaldehyde storage	30101842	0.03-0.2 kg/Mg of 37% formaldehyde used	Uncontrolled, basis unclear	106
Formaldehyde	50000	2865	Phthalic anhydride production	Phthalic anhydride condensers	301019	2.1 kg/Mg PA produced	Uncontrolled, no info. was available on the basis of these estimates or types of controls involved	106
Formaldehyde	50000	2865	Phthalic anhydride production	Phthalic anhydride condensers	301019	0.07% kg/Mg PA produced	Controlled by direct incin., no info. was available on basis of these est. or types of control invol	106
Formaldehyde	50000	2865	Phthalic anhydride production - naphthalene process	Main process incinerator	301019	2.1 g/kg PA produced	Uncontrolled, all aldehyde assumed to be formaldehyde	120
Formaldehyde	50000	2865	Phthalic anhydride production - naphthalene process	Main process incinerator	301019	0.07% g/kg PA produced	Controlled, test data and engineering judgement	120
Formaldehyde	50000	2865	Phthalic anhydride production - xylene process	Main process incinerator	301019	0.07% g/kg PA produced	Controlled, all aldehyde assumed to be formaldehyde	120
Formaldehyde	50000	2865	Phthalic anhydride production - xylene process	Main process incinerator	301019	2.1 g/kg PA produced	Uncontrolled, all aldehydes reported as formaldehyde	120
Formaldehyde	50000	2865	Acetone/phenol manufacture from cumene	Cumene peroxidation vent	30102002	0.001 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Formaldehyde	50000	2865	Acetone/phenol manufacture from cumene	Cleavage section vents (combined)	30102011	2.6 x 10E-7 g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Formaldehyde	50000	2869	Hexamethylene tetramine production	Process	30103425	<0.39 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or the types of control involved	106
Formaldehyde	50000	2869	Hexamethylene tetramine production	Formaldehyde storage	30103425	0.05 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or	106

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Formaldehyde	50000	2869	Formaldehyde production, silver catalyst process	Startup vent	301120	0.10 kg/Mg of 37% formal. soln. produced	the types of control involved Uncontrolled, based on hypothetical plant with formaldehyde production capacity of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Formaldehyde production, silver catalyst process	Formaldehyde storage	301120	0.03 kg/Mg of 37% formal. soln. produced	Uncontrolled, based on hypothetical plant with formaldehyde production capacity of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Formaldehyde production, silver catalyst process	Formaldehyde storage	301120	0.003 kg/Mg of 37% formal. soln. prod.	Controlled by vent scrubber, hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Formaldehyde production, silver catalyst process	Formaldehyde storage	301120	<0.0006 kg/Mg of 37% formal. soln. prod.	Controlled by thermal oxidation, hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Formaldehyde production, silver catalyst process	Handling	301120	0.01 kg/Mg of 37% formal. soln. produced	Uncontrolled, based on hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Formaldehyde production, silver catalyst process	Handling	301120	0.0004 kg/Mg of 37% formal. soln. prod.	Controlled by vapor recovery, hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Formaldehyde production, metal oxide catalyst process	Formaldehyde storage	301120	0.03 kg/Mg of 37% formal. soln. produced	Uncontrolled, based on hypothetical plant with formaldehyde production capacity of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Formaldehyde production, metal oxide catalyst process	Formaldehyde storage	301120	0.003 kg/Mg of 37% formal. soln. prod.	Controlled by vent scrubber, hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Formaldehyde production, metal oxide catalyst process	Handling	301120	0.01 kg/Mg of 37% formal. soln. produced	Uncontrolled, based on hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Formaldehyde production, metal oxide catalyst process	Handling	301120	0.0004 kg/Mg of 37% formal. soln. prod.	Controlled by vapor recovery, hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Formaldehyde production, silver catalyst process	Absorber	30112005	0.38 kg/Mg of 37% formal. solution prod.	Uncontrolled, based on hypothetical plant with	106

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Formaldehyde	50000	2869	Formaldehyde production, silver catalyst process	Absorber	30112005	<0.076 kg/Mg of 37% formal. soln. prod.	formaldehyde production capacity of 45,000 Mg/yr Controlled by thermal oxidation, based on hypothetical plant w/ formal. prod. capac. of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Formaldehyde production, silver catalyst process	Absorber	30112005	0.076 kg/Mg of 37% formal. soln. prod.	Controlled by flare, based on hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Formaldehyde production, metal oxide catalyst process	Absorber	30112005	0.47 kg/Mg of 37% formal. soln. produced	Uncontrolled, based on hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Formaldehyde production, metal oxide catalyst process	Absorber	30112005	<0.009 kg/Mg of 37% formal. soln. prod.	Controlled by thermal oxidation, hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Formaldehyde production, silver catalyst process	Product fractionator	30112006	0.33 kg/Mg of 37% formal. soln. produced	Uncontrolled, based on hypothetical plant with formaldehyde production capacity of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Formaldehyde production, silver catalyst process	Product fractionator	30112006	0 kg/Mg of 37% formal. solution produced	Recycle to absorber, based on hypothetical plant with formaldehyde production capac. of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Formaldehyde production, silver catalyst process	Product fractionator	30112006	0.017 kg/Mg of 37% formal. soln. prod.	Controlled by water scrubber, hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde	50000	2869	Pentaerythritol production	Process	301250	1.3-2.7 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or the types of control involved	106
Formaldehyde	50000	2869	Pentaerythritol production	Formaldehyde storage	301250	0.002-0.33 kg/Mg of 37% formal. used	No information was available on the basis of these estimates or the types of control involved	106
Formaldehyde	50000	2869	1,4-Butanediol production	Process	301250	<0.74 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or the types of control involved	106
Formaldehyde	50000	2869	1,4-Butanediol production	Process	301250	0 kg/Mg of 37% formaldehyde used	Controlled by flare, no information was available on the	106

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Formaldehyde	50000	2869	1,4-Butanediol production	Formaldehyde storage	301250	0.005-0.2 kg/Mg of 37% formaldehyde used	basis of this estimate No information was available on the basis of these estimates or the types of controls involved	106
Formaldehyde	50000	2869	Trimethylolpropane production	Process	301250	0.074 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or the types of controls involved	106
Formaldehyde	50000	2869	Trimethylolpropane production	Formaldehyde storage	301250	0.01 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or the types of controls involved	106
Formaldehyde	50000	2873	Solid urea production	Drum granulation	30104004	0.0055 kg/Mg of solid urea produced	Uncontrolled, based on source tests	106
Formaldehyde	50000	2873	Solid urea production	Drum granulation	30104004	0.0027 kg/Mg of solid urea produced	Controlled by wet scrubber, based on source tests	106
Formaldehyde	50000	2873	Solid urea production	Fluidized bed prilling (agricultural grade)	30104010	0.0095 kg/Mg of solid urea produced	Uncontrolled, based on source tests	106
Formaldehyde	50000	2873	Solid urea production	Fluidized bed prilling (agricultural grade)	30104010	0.0004 kg/Mg of solid urea produced	Controlled by wet scrubber, based on source tests	106
Formaldehyde	50000	2873	Solid urea production	Fluidized bed prilling (feed grade)	30104011	0.0020 kg/Mg of solid urea produced	Uncontrolled, based on source tests	106
Formaldehyde	50000	2873	Solid urea production	Fluidized bed prilling (feed grade)	30104011	0.0005 kg/Mg of solid urea produced	Controlled by wet scrubber, based on source tests	106
Formaldehyde	50000	2911	Petroleum refinery	FCC regenerator	306002	2.2 kg/1000 bbl fresh feed	Controlled with CO boiler/ESP, derived from emission test data for total aldehydes	106
Formaldehyde	50000	2911	Petroleum refinery	Moving bed (TCC) regenerator	306003	1.0 kg/1000 bbl fresh feed	Controlled with CO boiler/ESP, derived from emission test data for total aldehydes	106
Formaldehyde	50000	2911	Petroleum refinery	Fluid coker burner	30601201	0.34 kg/1000 bbl fresh feed	Controlled with CO boiler/ESP, derived from emission test data for total aldehydes	106
Formaldehyde	50000	2951	Asphaltic concrete production	Plant stack	305002	0.00015 lb/ton concrete	Based on limited test data, cyclone/wet scrubber control	97
Formaldehyde	50000	3296	Rosary spin wool glass fiber	Ductboard production	30501204	3.6 lb/ton finished product	Uncontrolled, may not represent	97

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Formaldehyde	50000	3296	production Rotary spin wool glass fiber production	Heavy density product production	30501204	0.85 lb/ton finished product	all organics in exhaust stream uncontrolled, may not represent all organics in exhaust stream	97
Formaldehyde	50000	3296	Rotary spin wool glass fiber production	R-19/R-11 production	30501204	0.9 lb/ton finished product	Uncontrolled, may not represent all organics in exhaust stream	97
Formaldehyde	50000	401	Mobile internal combustion sources	Locomotives	2	1.5 g/gal	Derived from total aldehyde emission test data	106
Formaldehyde	50000	45	Mobile internal combustion sources	Jet aircraft	2	1.9 g/gal	Derived from total aldehyde emissions data	106
Formaldehyde	50000	4953	Municipal waste combustion	Existing mass burn heat recovery facility	501001	5.2 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Formaldehyde	50000	4953	Municipal waste combustion	Projected or state-of-the-art mass burn heat recovery facility	501001	2.5 g/Mg of waste combusted	Controlled by ESP, based on source test	118
Formaldehyde	50000	4953	Municipal waste combustion	Mass burn nonheat recovery facility	501001	5.2 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Formaldehyde	50000	4953	Municipal waste combustion	Refuse-derived fuel facility	501001	1.1 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Formaldehyde	50000	4953	Municipal waste combustion	Modular facility	501001	1.3 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Formaldehyde	50000	4953	Municipal waste combustion	Existing mass burn heat recovery facility	501001	0.3 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Formaldehyde	50000	4953	Municipal waste combustion	Projected or state-of-the-art mass burn heat recovery facility	501001	0.2 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Formaldehyde	50000	4953	Municipal waste combustion	Mass burn nonheat recovery facility	501001	0.3 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Formaldehyde	50000	4953	Municipal waste combustion	Refuse-derived fuel facility	501001	0.07 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Formaldehyde	50000	4953	Municipal waste combustion	Modular facility	501001	0.08 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Formaldehyde	50000	5032	Asphalt distribution/use	Entire process		0.004 lb/ton asphalt applied	95% control efficiency Formaldehyde assumed to be 0.5% of THC	92
Gasoline vapor	8006619	421	Transport in tank trucks	Tank trucks loaded with product - typical losses	406001	0.5 mg/liter transported	Average of range determined from engineering estimate, RVP = 10 psia	97
Gasoline vapor	8006619	421	Transport in tank trucks	Tank trucks loaded with product - extreme losses	406001	5.0 mg/liter transported	Average of range determined from engineering estimate, RVP = 10 psia	97
Gasoline vapor	8006619	421	Transport in tank trucks	Tank trucks unloaded - typical losses	406001	6.5 mg/liter transported	Average of range determined from engineering estimate, RVP = 10 psia	97
Gasoline vapor	8006619	421	Transport in tank trucks	Tank trucks unloaded - extreme losses	406001	27.0 mg/liter transported	Average of range determined from engineering estimate, RVP = 10 psia	97
Gasoline vapor	8006619	517	Gasoline loading of tank trucks at bulk terminals	Submerged loading - dedicated normal service	404001	590 mg/liter transferred	Average of range determined from engineering estimate, RVP = 10 psia	97
Gasoline vapor	8006619	517	Gasoline loading of tank trucks at bulk terminals	Submerged loading - vapor balance service	404001	980 mg/liter transferred	Engineering estimate using RVP of 10 psia	97
Gasoline vapor	8006619	517	Gasoline loading of tank trucks at bulk terminals	Splash loading - dedicated normal service	404001	1430 mg/liter transferred	Engineering estimate using RVP of 10 psia	97
Gasoline vapor	8006619	517	Gasoline loading of tank trucks at bulk terminals	Splash loading - vapor balance service	404001	980 mg/liter transferred	Engineering estimate using RVP of 10 psia	97
Gasoline vapor	8006619	5171	Gasoline storage at bulk terminals	Fixed-roof storage tanks - working losses	404001	0.0986 Mg/10E6 liter throughput	Converted from Mg/yr, assume 365 days of operation, equal throughput for each tank	50
Gasoline vapor	8006619	5171	Gasoline storage at bulk terminals	Fixed-roof storage tanks - breathing losses	404001	0.0254 Mg/10E6 liter throughput	Converted from Mg/yr, assume 365 days of operation, equal throughput for each tank	50
Gasoline vapor	8006619	5171	Gasoline storage at bulk terminals	Floating-roof storage tanks - working losses	404001	2.01 x 10E-8 Mg/10E6 liter throughput	Converted from Mg/yr, assume 365 days of operation, equal throughput for each tank	50
Gasoline vapor	8006619	5171	Gasoline storage at bulk terminals	Floating-roof storage tanks - storage losses	404001	0.0277 Mg/10E6 liter throughput	Converted from Mg/yr, assume 365 days of operation, equal throughput for each tank	50
Gasoline vapor	8006619	5171	Gasoline storage at bulk plants	Storage tanks - breathing loss	404002	0.032 mg/liter throughput	Uncontrolled, engineering estimate, assume fixed roof	50

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Gasoline vapor	8006619	5171	Gasoline storage at bulk plants	Storage tanks - filling losses	400002	0.061 mg/liter throughput	Uncontrolled, engineering estimate, assume fixed roof	50
Gasoline vapor	8006619	5171	Gasoline storage at bulk plants	Storage tanks - draining loss	400002	0.024 mg/liter throughput	Uncontrolled, engineering estimate, assume fixed roof	50
Gasoline vapor	8006619	5171	Gasoline loading of tank trucks at bulk plants	Splash loading - dedicated normal service	400002	1430 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Gasoline vapor	8006619	5171	Gasoline loading of tank trucks at bulk plants	Splash loading - vapor balance service	400002	980 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Gasoline vapor	8006619	5171	Gasoline loading of tank trucks at bulk plants	Submerged loading - dedicated normal service	400002	590 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Gasoline vapor	8006619	5171	Gasoline loading of tank trucks at bulk plants	Submerged loading - vapor balance service	400002	980 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Gasoline vapor	8006619	5541	Service stations	Tank breathing and emptying	400003	120 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Gasoline vapor	8006619	5541	Service stations	Splash filling of underground tanks	4000301	1380 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Gasoline vapor	8006619	5541	Service stations	Submerged filling of underground tanks	4000302	880 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Gasoline vapor	8006619	5541	Service stations	Balanced submerged filling of underground tanks	4000306	40 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Gasoline vapor	8006619	5541	Service stations	Refueling operations - displacement losses (uncontrolled)	400004	1320 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Gasoline vapor	8006619	5541	Service stations	Refueling operations - displacement losses (controlled)	400004	132 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Gasoline vapor	8006619	5541	Service stations	Refueling operations - spillage	400004	80 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Heptachlorodibenzop-diox in		26	Kraft paper recovery boilers	Stack	307	0.18 - 0.88 ng/dscm @ 3% O ₂	Three locations tested	115
Heptachlorodibenzop-diox in		33	Secondary copper smelting	Stack	304	2300 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Heptachlorodibenzop-diox in		33	Secondary copper smelting	Stack	304	5000 ng/dscm @ 3% O ₂	Estimated value from stack test results	115

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Heptachlorodibenzo-p-dioxin		49	Industrial carbon regeneration	Stack		0.90 ng/dscm @ 3% O ₂	Tier 4 stack testing	115
Heptachlorodibenzo-p-dioxin		49	Drum and barrel furnace	Stack	5	1.3 ng/dscm @ 3% O ₂	Tier 4 stack test sampling	115
Heptachlorodibenzo-p-dioxin		49	Sewage sludge incineration	Stack	5	0.22 - 21 ng/dscm @ 3% O ₂	Three locations tested	115
Heptachlorodibenzo-p-dioxin		49	Wire reclamation incineration	Stack	5	130 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Heptachlorodibenzo-p-dioxin		49	Wood combustion	Stack, industrial wood-fired boiler	5	39 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
Heptachlorodibenzo-p-dioxin		806	Hospital waste incineration	Incinerator	315020	3.07 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Heptachlorodibenzo-p-dioxin, total		4953	Municipal waste combustion	Mass burn with waterwall	5	4.43 - 2880 ng/m ³ @ 12% CO ₂	n = 10, 6 locations, controlled with an ESP	118
Heptachlorodibenzo-p-dioxin, total		4953	Municipal waste combustion	Mass burn with waterwall	5	17.4 - 7320 ug/Mg feed	n = 6, 4 locations, controlled with an ESP	118
Heptachlorodibenzofurans		26	Kraft paper recovery boilers	Stack	307	0.16 - 0.50 ng/dscm @ 3% O ₂	Three locations tested	115
Heptachlorodibenzofurans		33	Secondary copper smelting	Stack	306	11,000 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Heptachlorodibenzofurans		49	Industrial carbon regeneration	Stack		0.61 ng/dscm @ 3% O ₂	Tier 4 stack testing	115
Heptachlorodibenzofurans		49	Drum and barrel furnace	Stack	5	2.0 ng/dscm @ 3% O ₂	Tier 4 stack test sampling	115
Heptachlorodibenzofurans		49	Sewage sludge incineration	Stack	5	Not detectable - 60 ng/dscm @ 3% O ₂	Three locations tested, does not include 2,3,7,8-isomer, detection limit <0.1 ug/dscm @ 3% O ₂	115
Heptachlorodibenzofurans		49	Wire reclamation incineration	Stack	5	230 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Heptachlorodibenzofurans		49	Wood combustion	Stack, industrial wood-fired boiler	5	6.5 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
Heptachlorodibenzofurans		806	Hospital waste incineration	Incinerator	315020	1.65 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Heptachlorodibenzofurans, total		4953	Municipal waste combustion	Mass burn with waterwall	5	2.35 - 2560 ng/m ³ @ 12% CO ₂	n = 10, 6 locations, controlled with an ESP	118

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Heptachlorodibenzofurans, total		4953	Municipal waste combustion	Mass burn with waterwall	5	9.2% - 8160 ug/Mg feed	n = 6, 4 locations, controlled with an ESP	118
Hexachlorobenzene	118741	072	Application of fungicide - Pentachloronitrobenzene	Application	302	2 lbs/ton fungicide used	Assumes content = 0.1%, all volatilized - worst case situations	49
Hexachlorobenzene	118741	072	Application of herbicide - Dacthal	Application	302	2 lbs/ton herbicide used	Assumes content = 0.1%, all volatilized - worst case situations	49
Hexachlorobenzene	118741	4953	Landfill of HCB waste	Fugitives	501006	4.1 x 10E-10 g/cm2/day	Based on engineering estimates, assumes landfill conditions, HCB volatilization	49
Hexachlorobenzene	118741	4953	Wastewater treatment	POTW	50100701	0.26 kg/Mg hexachlorobenz. in influent	Based on engls. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	60
Hexachlorobenzene	118741	4953	Landfill of HCB waste	Fugitives	502006	4.1 x 10E-10 g/cm2 day	Based on engineering estimates, assumes landfill conditions, HCB volatilization	49
Hexachlorocyclopentadiene	77474	2869	Hexachlorocyclopentadiene production	Chlorination reactor vent	301	0.0052 lb/lb produced	Based on engineering judgement	13
Hexachlorocyclopentadiene	77474	2869	Hexachlorocyclopentadiene production	Fugitive - equipment leaks	30*	0.0020 lb/lb produced	Based on engineering judgement	13
Hexachlorocyclopentadiene	77474	2869	Hexachlorocyclopentadiene production	Storage	407	0.0008 lb/lb produced	Based on engineering judgement	13
Hexachlorocyclopentadiene	77474	2879	Pesticide manufacturing	Process	301033	0.000325 lb/lb used	Based on engineering judgement	13
Hexachlorocyclopentadiene	77474	2879	Pesticide manufacturing	Storage	301033	0.00005 lb/lb used	Based on engineering judgement	13
Hexachlorocyclopentadiene	77474	2879	Pesticide manufacturing	Fugitive	301033	0.000125 lb/lb used	Based on engineering judgement	13
Hexachlorodibenzo-p-dioxin, 1,2,3,4,7,8-	57653857	4953	Municipal waste combustion	Mass burn with waterwall	5	0.15 - 6.1 ng/Ma3 @ 12% CO2	n = 6, 4 locations, controlled with an ESP	118
Hexachlorodibenzo-p-dioxin, 1,2,3,6,7,8-	34465468	4953	Municipal waste combustion	Mass burn with waterwall	5	0.37 - 11 ng/Ma3 @ 12% CO2	n = 6, 4 locations, controlled with an ESP	118
Hexachlorodibenzo-p-dioxin, 1,2,3,7,8,9-	19408743	4953	Municipal waste combustion	Mass burn with waterwall	5	0 - 4.6 ng/Ma3 @ 12% CO2	n = 6, 4 locations, controlled with an ESP	118
Hexachlorodibenzo-p-dioxin	26	26	Kraft paper recovery boilers	Stack	307	0.06 - 0.39 ng/dscm @ 3% O2	Three locations tested	115

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
ns								
Hexachlorodibenzo-p-dioxin		33	Secondary copper smelting	Stack	304	2200 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
ns		49	Industrial carbon regeneration	Stack		0.98 ng/dscm @ 3% O ₂	Tier 4 stack testing	115
Hexachlorodibenzo-p-dioxin		49	Drum and barrel furnace	Stack	5	0.79 ng/dscm @ 3% O ₂	Tier 4 stack test sampling	115
ns		49	Sewage sludge incineration	Stack	5	Not detectable - 7.0 ng/dscm @ 3% O ₂	Three locations tested, detection limit <0.1 ng/dscm @ 3% O ₂	115
Hexachlorodibenzo-p-dioxin		49	Wire reclamation incineration	Stack	5	14 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
ns		49	Wood combustion	Stack, industrial wood-fired boiler	5	49 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
Hexachlorodibenzo-p-dioxin		806	Hospital waste incineration	Incinerator	315020	2.97 x 10E-6 lb/ton feed	Uncontrolled, test data	9
ns		4953	Municipal waste combustion	Mass burn with waterwall	5	5.1 - 3190 ng/m ³ @12% CO ₂	n = 10, 6 locations, controlled with an ESP	118
Hexachlorodibenzo-p-dioxin		4953	Municipal waste combustion	Mass burn with waterwall	5	16 - 8090 ug/kg feed	n = 6, 4 locations, controlled with an ESP	118
ns, total		4953	Municipal waste combustion	Mass burn with waterwall	5	0.67 - 13 ng/m ³ @ 12% CO ₂	n = 3, 3 locations, controlled with an ESP	118
Hexachlorodibenzofuran, 1,2,3,4,7,8-		4953	Municipal waste combustion	Mass burn with waterwall	5	0.27 - 7.8 ng/m ³ @ 12% CO ₂	n = 6, 3 locations, controlled with an ESP	118
ns		4953	Municipal waste combustion	Mass burn with waterwall	5	0 - 4.3 ng/m ³ @ 12% CO ₂	Three locations tested	115
Hexachlorodibenzofuran, 1,2,3,6,7,8-		26	Kraft paper recovery boilers	Stack	307	0.07 - 0.59 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
ns		33	Secondary copper smelting	Stack	304	6000 ng/dscm @ 3% O ₂	Tier 4 stack testing	115
Hexachlorodibenzofuran		49	Industrial carbon regeneration	Stack		0.59 ng/dscm @ 3% O ₂	Tier 4 stack test sampling	115
ns		49	Drum and barrel furnace	Stack	5	3.0 ng/dscm @ 3% O ₂	Three locations tested, does not	115
Hexachlorodibenzofuran		49	Sewage sludge incineration	Stack	5	0.10 - 32 ng/dscm @ 3% O ₂		115

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Hexachlorodibenzofurans		49	Wire reclamation incineration	Stack	5	65 ng/dscm @ 3% O ₂	include 2,3,7,8-isomer	115
Hexachlorodibenzofurans		49	Wood combustion	Stack, industrial wood-fired boiler	5	15 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Hexachlorodibenzofurans		806	Hospital waste incineration	Incinerator	315020	0.75 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Hexachlorodibenzofurans, total		4953	Municipal waste combustion	Mass burn with waterwall	5	1.82 - 3980 ng/Ma3 @ 12% O ₂	n = 10, 6 locations, controlled with an ESP	118
Hexachlorodibenzofurans, total		4953	Municipal waste combustion	Mass burn with waterwall	5	7.16 - 10,100 ug/Mg feed	n = 6, 4 locations, controlled with an ESP	118
Hydrogen chloride	7647010		Waste oil combustion	Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	6.15 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement	55
Hydrogen chloride	7647010	2819	Hydrochloric acid-synthesis process	Entire process		0 to <0.035 lbs/ton acid produced		34
Hydrogen chloride	7647010	2819	Hydrochloric acid-manurella process	Entire process		1.3 to 3.8 lbs/ton acid produced		34
Hydrogen chloride	7647010	2819	By-product HCl manufacturing	Entire process	30101101	0-8.5 lbs/ton acid produced	Final scrubber	34
Hydrogen chloride	7647010	2819	Hydrochloric acid manufacture	By-product HCl	30101101	0.2 lb/ton	Without scrubber	97
Hydrogen chloride	7647010	2819	Hydrochloric acid manufacture	By-product HCl	30101101	3 lb/ton		97
Hydrogen chloride	7647010	2821	Polyvinyl chloride production	Suspension process, entire plant	301018	21 x 10E-5 g/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138
Hydrogen chloride	7647010	2822	Neoprene manufacture	Aqueous waste vent	301026	0.00001 g/kg neoprene	Engineering judgement	123
Hydrogen chloride	7647010	2822	Neoprene manufacture	Chloroprene vent condenser	301026	0.002 g/kg neoprene	Engineering judgement	123
Hydrogen chloride	7647010	2822	Neoprene manufacture	Incinerator	301026	0.016 g/kg neoprene	Engineering judgement	123
Hydrogen chloride	7647010	2869	Ethyl chloride production by hydrochlorination	Separation	301	0.0005 g/kg produced	Control uncertain, based on mass balance and tests	95
Hydrogen chloride	7647010	2869	Ethylene dichloride production - direct chlorination	Absorption	30112502	0.01 g/kg produced	Control uncertain, based on tests and mass balance	95

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Hydrogen chloride	7647010	2869	Methyl chloroform production by hydrochlorination	Heat transfer	3012525	0.01 g/kg produced	Control uncertain, based on mass balance and tests	95
Hydrogen chloride	7647010	2869	Methyl chloroform production by hydrochlorination	Separation	3012525	0.01 g/kg produced	Control uncertain, based on mass balance and tests	95
Hydrogen chloride	7647010	2869	Mono-, and dichlorobenzene production, direct chlorination	Absorption	3012535	0.06 g/kg produced	Control uncertain, based on tests and mass balance	95
Hydrogen chloride	7647010	2869	Propylene oxide production by chlorohydrination	Absorption	30120502	3.73 g/kg produced	Control unclear, based on mass balance and testing	95
Hydrogen chloride	7647010	2869	Epichlorohydrin production by hydrochlorination	Separation	30130501	0.0005 g/kg produced	Control unclear, based on mass balance and testing	95
Hydrogen chloride	7647010	3312	Steel pickling	Absorber towers	30300910	0.00055-0.0011 lbs/ton steel pickled	Calculated from information in reference	133
Hydrogen chloride	7647010	4911	Coal combustion	Boiler	1	0.08-0.3 lbs/million Btu from coal		133
Hydrogen chloride	7647010	4911	Coal combustion	Boiler	1	0.00192 lb/ton coal burned	Control status unspecified	133
Hydrogen chloride	7647010	4953	Municipal waste combustion	Entire process	5	0.062-4.88 lbs/ton refuse	Depends on waste content, combustion conditions, control device	133
Hydrogen chloride	7647010	4953	Municipal waste combustion	Entire process	5	1.4 lb/ton refuse	For units which do not recover energy	133
Hydrogen chloride	7647010	4953	Municipal waste combustion	Entire process	5	4 lb/ton refuse	For waste-to-energy facilities	133
Hydrogen chloride	7647010	4953	Municipal waste combustion	Mass burn, heat recovery facility	501001	4.13 kg/Mg of waste combusted	No HCl control, based on source tests	118
Hydrogen chloride	7647010	4953	Municipal waste combustion	Mass burn, nonheat recovery facility	501001	4.13 kg/Mg of waste combusted	No HCl control, based on source tests	118
Hydrogen chloride	7647010	4953	Municipal waste combustion	Refuse-derived fuel facility	501001	2.57 kg/Mg of waste combusted	No HCl control, based on source tests	118
Hydrogen chloride	7647010	4953	Municipal waste combustion	Modular facility	501001	3.58 kg/Mg of waste combusted	No HCl control, based on source tests	118
Hydrogen chloride	7647010	4953	Municipal waste combustion	Mass burn, heat recovery facility	501001	0.4 kg/Mg of waste combusted	Controlled by dry alkaline scrubber, assumes 90% HCl control	118

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Hydrogen chloride	7647010	4953	Municipal waste combustion	Mass burn, northeast recovery facility	501001	0.4 kg/Mg of waste combusted	efficiency Controlled by dry alkaline scrubber, assumes 90% HCl control efficiency	118
Hydrogen chloride	7647010	4953	Municipal waste combustion	Refuse-derived fuel facility	501001	0.3 kg/Mg of waste combusted	Controlled by dry alkaline scrubber, assumes 90% HCl control efficiency	118
Hydrogen chloride	7647010	4953	Municipal waste combustion	Modular facility	501001	0.4 kg/Mg of waste combusted	Controlled by dry alkaline scrubber, assumes 90% HCl control efficiency	118
Hydrogen chloride	7647010	4953	Sewage sludge incineration	Incinerator stack	50100701	0.75 kg/Mg dried sludge	Uncontrolled	97
Hydrogen chloride	7647010	4953	Sewage sludge incineration	Incinerator stack	50100701	0.15 kg/Mg dried sludge	Scrubber	97
Hydrogen chloride	7647010	806	Hospital waste incineration	Two-chambered incinerator	315020	20-32 lb/ton waste	Uncontrolled, range due to variation in waste, test of one facility	103
Hydrogen cyanide	74908	2869	Acrylonitrile production - S0M10 process	Absorber vent	30125406	0.2 g/kg acrylonitrile produced	Uncontrolled, based on data from plants and EPA studies	149
Hydrogen fluoride	7664393	2819	Hydrofluoric acid manufacture	Tail gas	30101206	25 lb/ton acid	Uncontrolled, average of data for three plants	97
Hydrogen fluoride	7664393	2819	Hydrofluoric acid manufacture	Tail gas	30101206	0.2 lb/ton acid	Caustic scrubber, average of data for three plants	97
Hydrogen sulfide	7783064		Fish processing plants	Fish scrap cookers - fresh	30201201	0.01 lb/ton fish	Uncontrolled	97
Hydrogen sulfide	7783064		Fish processing plants	Fish scrap cookers - stale	30201202	0.2 lb/ton fish	Uncontrolled	97
Hydrogen sulfide	7783064	1211	Coal refuse pile burning	Refuse pile		3.0 x 10E-4 kg/hr/Mg burning coal refuse		136
Hydrogen sulfide	7783064	2611	Kraft mill paper process	Line kiln and fluidized bed reactor	307001	0.0-1.88 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Hydrogen sulfide	7783064	2611	Kraft pulp - sulfite pulping	Brown stock washer	307001	0.02 lb/ton air-dried pulp	Uncontrolled, based on test data	97
Hydrogen sulfide	7783064	2611	Kraft pulp - sulfite pulping	Noncontact recovery boiler without direct contact evaporator	307001	0.1 lb/ton air-dried pulp	Apply when recovery furnace is operated optimally to control TRS	97

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Hydrogen sulfide	7783064	2611	Kraft mill paper process	Batch digester (blow)	30700101	0.0-0.1 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad range of emis.	5
Hydrogen sulfide	7783064	2611	Kraft mill paper process	Batch digester (relief)	30700101	0.0-0.05 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Hydrogen sulfide	7783064	2611	Kraft mill paper process	Continuous digester	30700101	0.0-0.1 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Hydrogen sulfide	7783064	2611	Kraft pulp - sulfite pulping	Digester relief and blow tank	30700101	0.03 lb/ton air-dried pulp	Untreated, based on test data	97
Hydrogen sulfide	7783064	2611	Kraft mill paper process	Brown stock washer(s) (hood vent)	30700102	0.0-0.1 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Hydrogen sulfide	7783064	2611	Kraft mill paper process	Brown stock washer(s) (seal vent)	30700102	0.0-0.01 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Hydrogen sulfide	7783064	2611	Kraft pulp - sulfite pulping	Multiple effect evaporator	30700103	1.1 lb/ton air-dried pulp	Untreated, based on test data	97
Hydrogen sulfide	7783064	2611	Kraft mill paper process	Tall oil recovery evaporator	30700104	0.05-1.5 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Hydrogen sulfide	7783064	2611	Kraft mill paper process	Recovery furnace (after direct contact evap.)	30700104	0.0-25.0 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Hydrogen sulfide	7783064	2611	Kraft mill paper process	Direct contact evap. (unoxidized black liquor)	30700104	2.5-15.0 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Hydrogen sulfide	7783064	2611	Kraft pulp - sulfite pulping	Recovery boiler and direct evaporator	30700104	12 lb/ton air-dried pulp	For venturi scrubber or ESP, can be reduced 50% with black liquor oxidation	97

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Hydrogen sulfide	7783064	2611	Kraft mill paper process	Smelt dissolv. tank	30700105	0.0-1.0 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Hydrogen sulfide	7783064	2611	Kraft pulp - sulfite pulping	Smelt dissolving tank	30700105	0.2 lb/ton air-dried pulp	For untreated, mesh pad or scrubber, can be lowered if low sulfite water used in tank	97
Hydrogen sulfide	7783064	2611	Kraft mill paper process	Lime kiln exhaust	30700106	0.0-0.5 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Hydrogen sulfide	7783064	2611	Kraft pulp - sulfite pulping	Lime kiln	30700106	0.5 lb/ton air-dried pulp	For untreated, scrubber or ESP	97
Hydrogen sulfide	7783064	2611	Kraft pulp - sulfite pulping	Lime kiln	30700106	0.03 lb/ton air-dried pulp	With efficient mud washing, optimal kiln operation, added caustic to scrubber water	97
Hydrogen sulfide	7783064	2611	Kraft pulp - sulfite pulping	Turpentine condenser	30700107	0.01 lb/ton air-dried pulp	Untreated	97
Hydrogen sulfide	7783064	2611	Kraft mill paper process	Black liquor oxidation tower	30700109	0.0-0.01 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Hydrogen sulfide	7783064	2611	Kraft mill paper process	Direct contact evap. (condensed black liquor)	30700109	0.05-1.0 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Hydrogen sulfide	7783064	2824	Synthetic fibers - viscose rayon	General emissions	30102501	6 lb/ton fibers	Uncontrolled, low quality factor	97
Hydrogen sulfide	7783064	2895	Carbon black manufacture - oil furnace	CO boiler/incinerator	303005	0.22 lb/ton carbon black produced	Based on test data	97
Hydrogen sulfide	7783064	2895	Carbon black manufacture - oil furnace	Flare	303005	2 lb/ton	Based on test data	97
Hydrogen sulfide	7783064	2895	Carbon black manufacture - oil furnace	Main process vent	30100504	60 lb/ton carbon black produced	Based on test data	97
Hydroxy 2-phenyl propane	7783064	2865	Acetone/phenol manufacture from cumene	Cumene peroxidation vent	30102002	0.0009 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Hydroxy-2-phenyl propane		2865	Acetone/phenol manufacture from cumene	Cleavage section vents (combined)	30120211	$3.4 \times 10E-6$ g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Isobutane	75285	2895	Carbon black manufacture - oil furnace	Main process vent	30100504	0.20 lb/ton carbon black produced	Based on test data	97
Isobutyraldehyde	78842		Wood combustion, residential	Woodstove		1.5 g/kg wood burned	Uncontrolled, average emission factor based on source tests	58
Isobutyraldehyde	78842		Wood combustion, residential	Fireplace		1.4 g/kg wood burned	Uncontrolled, average emission factor based on source tests	58
Isopentanal	590863	2865	Acetone/phenol manufacture from cumene	Cleavage section vents (combined)	30120211	$8.5 \times 10E-7$ g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Lead	7439921		Paved roads	Entire source		0.065 g/vehicle mile	Based on field measurements for 1975-1976	122
Lead	7439921		Paved roads	Dust reentrainment		0.03 g/vehicle mile	Calculated based on data available for 1975-1976	122
Lead	7439921		Paved roads	Vehicle exhaust		0.002 g/vehicle mile	Projected emission factor for 1990, calculated based on composite vehicle operation	122
Lead	7439921		Oil combustion	Industrial, commercial, and residential boilers	1	8.9 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement, assumed use distillate oil	36
Lead	7439921		Oil combustion	Utility boilers	101004	28 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement, assumed use residual oil	36
Lead	7439921	4911	Coal combustion, residential	Residential boilers		510.0 lb/10E12 Btu	Uncontrolled, assumed use anthracite coal, calculated based on engineering judgement	36
Lead	7439921	4911	Coal combustion	Utility boilers	101002	507.4 lb/10E12 Btu	Uncontrolled, assumed use bituminous coal, calculated based on engineering judgement	36
Lead	7439921	4911	Coal combustion	Utility boilers	101002	25.37 lb/10E12 Btu	Controlled, assumed use bituminous coal, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Lead	7439921	4911	Coal combustion	Industrial and commercial boilers	102002	507.4 lb/10E12 Btu	Uncontrolled, assumed use bituminous coal, calculated based on engineering judgement	36
Lead	7439921	4911	Coal combustion	Industrial and commercial boilers	102002	223.3 lb/10E12 Btu	Controlled, assumed use bituminous coal, calculated based on engineering judgement	36
Maleic anhydride	108316	2865	Phthalic anhydride production - naphthalene process	Main process incinerator	301019	7.0 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Maleic anhydride	108316	2865	Phthalic anhydride production - naphthalene process	Main process incinerator	301019	0.24 g/kg PA produced	Controlled, test data and engineering judgement	120
Maleic anhydride	108316	2865	Phthalic anhydride production - naphthalene process	Secondary incinerator	301019	4.9 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Maleic anhydride	108316	2865	Phthalic anhydride production - naphthalene process	Secondary incinerator	301019	0.05 g/kg PA produced	Controlled (not specified), test data and engineering judgement	120
Maleic anhydride	108316	2865	Phthalic anhydride production - xylene process	Main process incinerator	301019	1.82 g/kg PA produced	Controlled, based on test data	120
Maleic anhydride	108316	2865	Phthalic anhydride production - xylene process	Secondary incinerator	301019	0.038 g/kg PA produced	Controlled, test data and engineering judgement	120
Maleic anhydride	108316	2865	Phthalic anhydride production - xylene process	Main process incinerator	301019	52.0 g/kg PA produced	Uncontrolled, based on test data and engineering judgement	120
Maleic anhydride	108316	2865	Phthalic anhydride production - xylene process	Secondary incinerator	301019	3.75 g/kg PA produced	Uncontrolled, based on test data and engineering judgement	120
Manganese	7439965		Wood combustion, residential	Woodstoves		1.0 lb/ton wood burned	Control status and basis unspecified	94
Manganese	7439965		Wood combustion, residential	Fireplaces		1.0 lb/ton wood burned	Control status and basis unspecified	94
Manganese	7439965		Coal combustion, residential	Bituminous coal-fired boilers		760 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion, residential	Subbituminous coal-fired boilers		1000 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion, residential	Anthracite coal-fired boilers		790 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion, residential	Lignite coal-fired boilers		4200 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Manganese	7439965		Coal combustion, residential	Boilers fired by coal from northern plains region		1100 lb/10E12 Btu	engineering judgement	
Manganese	7439965		Coal combustion, residential	Boilers fired by coal from rocky mountain region		2200 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion, residential	Boilers fired by coal from appalachian region		860 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion, residential	Boilers fired by coal from interior region		910 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Manganese	7439965		Wood combustion, residential	Woodstove without baffle		0.19 g/Mg wood burned	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Manganese	7439965		Wood combustion, residential	Woodstove or fireplace		1.0 lb/ton burned	Uncontrolled	94
Manganese	7439965		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	2980 lb/10E12 Btu	Uncontrolled, based on source tests	36
Manganese	7439965		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	1390 lb/10E12 Btu	Controlled with multiclone, based on controlled and uncontrolled emission test data	36
Manganese	7439965		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	642 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Manganese	7439965		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	36 lb/10E12 Btu	Controlled with scrubber, based on source tests	36
Manganese	7439965		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	808-2980 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	377-1390 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	177 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Manganese	7439965		Coal combustion	Bituminous coal-fired cyclone	1	690-1300 lb/10E12 Btu	Uncontrolled, based on measured	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Manganese	7439965		Coal combustion	boilers, util/commerc/industr	1	322-607 lb/10E12 Btu	and calculated emission factors Controlled with multiclone, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Bituminous coal-fired cyclone boilers, util/commerc/industr	1	151 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Manganese	7439965		Coal combustion	Bituminous coal-fired cyclone boilers, util/commerc/industr	1	70-131 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Bituminous coal-fired stoker boilers, util/commerc/industr	1	2170 lb/10E12 Btu	Uncontrolled, based on source tests	36
Manganese	7439965		Coal combustion	Bituminous coal-fired stoker boilers, util/commerc/industr	1	196-1010 lb/10E12 Btu	Controlled with multiclone, based on measured and calculated emission factors	36
Manganese	7439965		Coal combustion	Bituminous coal-fired stoker boilers, util/commerc/industr	1	31-475 lb/10E12 Btu	Controlled with ESP, based on measured and calculated emission factors	36
Manganese	7439965		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	16,200 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	7580 lb/10E12 Btu	Controlled by multiclone, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	3500 lb/10E12 Btu	Controlled by ESP, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	196 lb/10E12 Btu	Controlled by scrubber, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	4,410-16,250 lb/10E12 Btu	Uncontrolled	36
Manganese	7439965		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	2050-7580 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Manganese	7439965		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	965 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Lignite coal-fired cyclone boilers, util/commerc/industr	1	3760-7090 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Lignite coal-fired cyclone boilers, util/commerc/industr	1	1760-3310 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Lignite coal-fired cyclone boilers, util/commerc/industr	1	823 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Lignite coal-fired cyclone boilers, util/commerc/industr	1	382-714 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Lignite coal-fired stoker boilers, util/commerc/industr	1	11,800 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Lignite coal-fired stoker boilers, util/commerc/industr	1	1070-5510 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Lignite coal-fired stoker boilers, util/commerc/industr	1	169-2590 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	3070 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	1430 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	661 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	37 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	832-3070 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Manganese	7439965		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	368-1430 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	182 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	710-1340 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	332-625 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	155 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	72-135 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Anthracite coal-fired stoker boilers, util/commerc/industr	1	2230 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Anthracite coal-fired stoker boilers, util/commerc/industr	1	202-1040 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Manganese	7439965		Coal combustion	Anthracite coal-fired stoker boilers, util/commerc/industr	1	32-489 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Manganese	7439965		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	26 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Manganese	7439965		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	11.96 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Manganese	7439965		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	5.72 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Manganese	7439965		Oil combustion	Residual oil-fired boilers, util/commerc/industr/residential	1	2.86 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Manganese	7439965		Oil combustion	Distillate oil-fired boilers, util/commerc/industr/residential	1	14 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Manganese	7439965		Oil combustion	Distillate oil-fired boilers, util/commerc/industr/residential	1	6.44 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Manganese	7439965		Oil combustion	Distillate oil-fired boilers, util/commerc/industr/residential	1	3.08 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Manganese	7439965		Oil combustion	Distillate oil-fired boilers, util/commerc/industr/residential	1	1.54 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Manganese	7439965		Wood combustion	Industrial	102009	1.0 lb/ton wood burned	Control status unspecified, based on emission factor for residential woodstoves	94
Manganese	7439965		Wood combustion	Commercial	103009	1.0 lb/ton wood burned	Control status unspecified, based on emission factor for residential woodstoves	94
Manganese	7439965	1061	Mining	General	305	Negligible	High grade ore no longer mined in U.S.	13
Manganese	7439965	226	Woven fabric finishing	Tenter frames - resin finishing	330001	0.083 mg/kg fabric	Uncontrolled, average of four tests	52
Manganese	7439965	226	Woven fabric finishing	Thermosol dyeing	330001	0.029 mg/kg fabric	Uncontrolled, average of three tests	52
Manganese	7439965	226	Woven fabric finishing	Heat setting	330001	0.011 mg/kg fabric	Uncontrolled, based on test data	52
Manganese	7439965	226	Woven fabric finishing	Curing oven - resin finish	330001	0.074 mg/kg fabric	Uncontrolled, average of three tests	52
Manganese	7439965	2819	Chemical applications	Entire process	301	0.004 lb/lb used	Based on engineering estimates	13
Manganese	7439965	2819	Synthetic manganese production	Drying and grinding	301070	8.9 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	2819	Synthetic manganese production	Drying and grinding	301070	0.009 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	2819	Synthetic manganese production	Roasting	301070	110 lb/ton of material	Uncontrolled, calculated based on	107

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Manganese	7439965	2819	Synthetic manganese production	Roasting	301070	processed 0.22 lb/ton of material processed	engineering judgement Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	2819	Synthetic manganese production	Packaging and handling	301070	5.4 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	2819	Synthetic manganese production	Packaging and handling	301070	0.0054 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	2819	Manganese chemical manufacturing	Ore drying/grinding	301070	8.9 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	2819	Manganese chemical manufacturing	Ore drying/grinding	301070	0.009 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	2819	Manganese chemical manufacturing	Ore roasting	301070	110 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	2819	Manganese chemical manufacturing	Ore roasting	301070	0.22 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	3241	Cement manufacture	Clinker cooler	305	0.005-0.061 lb/10E3 tons cement produced	Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	3241	Cement manufacture	Clinker cooler	305	0.023-0.045 lb/10E3 tons cement produced	Controlled by gravel bed, calculated based on engineering judgement	107
Manganese	7439965	3241	Cement manufacture	Clinker cooler	305	0.022 lb/10E3 tons cement produced	Controlled by wet scrubber, calculated based on engineering judgement	107
Manganese	7439965	3241	Cement manufacture - dry process	Kiln	30500606	122 lb/10E3 tons cement produced	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3241	Cement manufacture - dry process	Kiln	30500606	0.021-0.125 lb/10E3 tons cement produced	Controlled by ESP, calculated based on engineering judgement	107
Manganese	7439965	3241	Cement manufacture - dry process	Kiln	30500606	0.013-0.124 lb/10E3 tons cement produced	Controlled by fabric filter, calculated based on engineering judgement	107

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Manganese	7439965	3241	Cement manufacture - dry process	Dryers and grinders	30500613	48 lb/10E3 tons cement produced	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3241	Cement manufacture - wet process	Dryers and grinders	305007	16 lb/10E3 tons cement produced	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3241	Cement manufacture - wet process	Kilns	30500706	114 lb/10E3 tons cement produced	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3241	Cement manufacture - wet process	Kilns	30500706	0.02-0.142 lb/10E3 tons cement produced	Controlled by ESP, calculated based on engineering judgement	107
Manganese	7439965	3241	Cement manufacture - wet process	Kilns	30500706	0.049-0.132 lb/10E3 tons cement produced	Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	General	303	0.00002 lb/lb iron and steel produced	Based on engineering estimates	13
Manganese	7439965	3312	Coking	Coke oven battery	303003	0.000013 lb/lb coal burned	Based on engineering estimates	13
Manganese	7439965	3312	Iron and steel production	Sintering operations, sinter discharge (breaker and hot screen)	303008	0.08 lb/ton of sinter	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	Sintering operations, sinter discharge (breaker and hot screen)	303008	0.0012 lb/ton of sinter	Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	Sintering operations, sinter discharge (breaker and hot screen)	303008	0.007 lb/ton of sinter	Controlled by orifice scrubber, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	Sintering operations, windbox and discharge	303008	0.0036 lb/ton of sinter	Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	Sintering operations, windbox exhaust	30300813	0.134 lb/ton of sinter	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	Sintering operations, windbox exhaust	30300813	0.104 lb/ton of sinter	After coarse particle removal, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	Sintering operations, windbox exhaust	30300813	0.0192 lb/ton of sinter	Controlled by dry ESP, calculated based on engineering judgement	107

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Manganese	7439965	3312	Iron and steel production	Sintering operations, windbox exhaust	30300813	0.002 lb/ton of sinter	Controlled by wet ESP, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	Sintering operations, windbox exhaust	30300813	0.0056 lb/ton of sinter	Controlled by scrubber, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	Sintering operations, windbox exhaust	30300813	0.012 lb/ton of sinter	Controlled by cyclone, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	Iron blast furnaces, casthouse emissions	30300825	0.0018 lb/ton of iron	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	Iron blast furnaces, casthouse emissions	30300825	0.00018 lb/ton of iron	Controlled by runner covers & pickup hoods to fabric filter, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	Iron blast furnaces, slaps	30300826	0.261 lb/slap	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	Open hearth furnace operations, roof monitor	303009	0.0006 lb/ton of pig iron	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	Open hearth furnace operations, teeming	303009	0.00026 lb/ton of pig iron	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	Open hearth furnace operations, teeming	303009	0.000006 lb/ton of pig iron	Controlled by side-draft hood to fabric filter, calculated based on engineering judgement	107
Manganese	7439965	3312	Steel production	Basic oxygen furnace operations, Q-BOP process melting/refining	303009	0.00056 lb/ton of steel	Controlled by scrubber, calculated based on engineering judgement	107
Manganese	7439965	3312	Steel production	Basic oxygen furnace operations, BOF monitor	303009	0.005 lb/ton of steel	All sources, uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3312	Steel production	Electric arc furnace operations, charging/tapping/slugging	303009	0.049 lb/ton of product	Uncontrolled at roof monitor, calculated based on engineering judgement	107
Manganese	7439965	3312	Steel production	Electric arc furnace operations, melt/refine/charge/tap/slag carbon steel	303009	1.75 lb/ton of product	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3312	Steel production	Electric arc furnace	303009	0.0015 lb/ton of product	Controlled by DEC plus charging	107

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Manganese	7439965	3312	Steel production	operations, melt/refine/charge/tap/slag carbon steel	3030009	0.656 lb/ton of product	hood to fabric filter, calculated based on engineering judgement	107
Manganese	7439965	3312	Steel production	Electric arc furnace operations, melt/refine/charge/tap/slag alloy steel	3030009	0.0174 lb/ton of product	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	Electric arc furnace operations, melt/refine/charge/tap/slag alloy steel	30300901	0.078 lb/ton of pig iron	Controlled by total building evacuation to fabric filter, calculated based on engineering judgement	107
Manganese	7439965	3312	Iron and steel production	Open hearth furnace operations, melting/refining	30300901	0.001 lb/ton of pig iron	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3312	Steel production	Open hearth furnace operations, melting/refining	30300908	1.33 lb/ton of product	Controlled by ESP, calculated based on engineering judgement	107
Manganese	7439965	3312	Steel production	Electric arc furnace operations, melting/refining carbon steel	30300913	0.285 lb/ton of steel	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3312	Steel production	Top-blown basic oxygen furnace, melting/refining	30300913	0.013 lb/ton of steel	Controlled by open hood vented to ESP, calculated based on engineering judgement	107
Manganese	7439965	3312	Steel production	Top-blown basic oxygen furnace, melting/refining	30300913	0.009 lb/ton of steel	Controlled by open hood vented to scrubber, calculated based on engineering judgement	107
Manganese	7439965	3312	Steel production	Top-blown basic oxygen furnace, melting/refining	30300914	0.00068 lb/ton of steel	Controlled by closed hood vented to scrubber, calculated based on engineering judgement	107
Manganese	7439965	3312	Steel production	Basic oxygen furnace operations, hot metal transfer	30300915	0.0004 lb/ton of steel	At source, uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3312	Steel production	Basic oxygen furnace operations, charging	30300916	0.006 lb/ton of steel	At source, uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3312	Steel production	Basic oxygen furnace	30300917	0.0092 lb/ton of steel	At source, uncontrolled,	107

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Manganese	7439965	3313	Manganese-bearing ferroalloy prod/electric arc furnace proc.	operations, tapping	303	0.90 lb/ton of Mn ore processed	calculated based on engineering judgement	107
Manganese	7439965	3313	Manganese-bearing ferroalloy prod/electric arc furnace proc.	Receipt and storage of Mn ore	303	0.90 lb/ton of Mn ore processed	Control status unspecified, calculated based on engineering judgement	107
Manganese	7439965	3313	Manganese-bearing ferroalloy prod/electric arc furnace proc.	Crushing and sizing	303	0.90 lb/ton of Mn ore processed	Control status unspecified, calculated based on engineering judgement	107
Manganese	7439965	3313	Manganese-bearing ferroalloy prod/electric arc furnace proc.	weighing and feeding	303	0.80 lb/ton of Mn ore processed	Control status unspecified, calculated based on engineering judgement	107
Manganese	7439965	3313	Ferromanganese production by electric arc furnace process	Ladle treatment	303	7.5 lb/ton of Mn product	Control status unspecified, calculated based on engineering judgement	107
Manganese	7439965	3313	Ferromanganese production by electric arc furnace process	Casting	303	0.48 lb/ton of Mn product	Control status unspecified, calculated based on engineering judgement	107
Manganese	7439965	3313	Ferromanganese production by electric arc furnace process	Crushing/grinding/sizing	303	0.16 lb/ton of Mn product	Control status unspecified, calculated based on engineering judgement	107
Manganese	7439965	3313	Silicomanganese production by electric arc furnace process	Ladle treatment	303	6.0 lb/ton of Mn product	Control status unspecified, calculated based on engineering judgement	107
Manganese	7439965	3313	Silicomanganese production by electric arc furnace process	Casting	303	0.24 lb/ton of Mn product	Control status unspecified, calculated based on engineering judgement	107
Manganese	7439965	3313	Silicomanganese production by electric arc furnace process	Crushing/grinding/sizing	303	0.13 lb/ton of Mn product	Control status unspecified, calculated based on engineering judgement	107
Manganese	7439965	3313	Ferromanganese production by electric arc furnace process	Sealed submerged-arc electric furnace	303	19.2 lb/ton of product	Uncontrolled, based on AP-42 data for ferroalloy production	107
Manganese	7439965	3313	Ferromanganese production by electric arc furnace process	Sealed submerged-arc electric furnace	303	9.46 lb/MWh consumed by furn. operation	Uncontrolled, based on AP-42 data for ferroalloy production	107
Manganese	7439965	3313	Ferromanganese production by electric arc furnace process	Sealed submerged-arc electric furnace	303	0.008 lb/MWh consumed by furn. operation	Controlled by scrubbers, calculated from source tests of total particulate emissions	107

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Manganese	7439965	3313	Silicomanganese production by electric arc furnace process	Sealed submerged-arc electric furnace	303	0.002 lb/MWh consumed by furn. operation	Controlled by scrubbers, calculated from source tests of total particulate emissions	107
Manganese	7439965	3313	Ferromanganese production by electric arc furnace process	Open submerged-arc electric furnace	303006	13.2 lb/ton of product	Uncontrolled, based on AP-42 data for ferroalloy production	107
Manganese	7439965	3313	Ferromanganese production by electric arc furnace process	Open submerged-arc electric furnace	303006	6.16 lb/MWh consumed by furn. operation	Uncontrolled, based on AP-42 data for ferroalloy production	107
Manganese	7439965	3313	Ferromanganese production by electric arc furnace process	Open submerged-arc electric furnace	303006	0.4 lb/ton of product	Controlled by scrubbers, calculated from source tests of total particulate emissions	107
Manganese	7439965	3313	Ferromanganese production by electric arc furnace process	Open submerged-arc electric furnace	303006	0.189 lb/MWh consumed by furn. operation	Controlled by scrubbers, calculated from source tests of total particulate emissions	107
Manganese	7439965	3313	Ferroalloy production	General	303006	0.003307 lb/lb ferroalloy produced	Based on engineering estimates	13
Manganese	7439965	3313	Silicomanganese production by electric arc furnace process	Open submerged-arc electric furnace	30300605	0.11 lb/MWh consumed by furn. operation	Controlled by scrubbers, calculated from source tests of total particulate emissions	107
Manganese	7439965	3313	Ferromanganese production by electric arc furnace process	Semi-sealed submerged-arc electric furnace	30300701	5.2 lb/ton of product	Uncontrolled, based on AP-42 data for ferroalloy production	107
Manganese	7439965	3313	Ferromanganese production by electric arc furnace process	Semi-sealed submerged-arc electric furnace	30300701	2.33 lb/MWh consumed by furn. operation	Uncontrolled, based on AP-42 data for ferroalloy production	107
Manganese	7439965	3313	Ferromanganese production by electric arc furnace process	Semi-sealed submerged-arc electric furnace	30300701	0.08 lb/ton of product	Controlled by scrubbers, calculated from source tests of total particulate emissions	107
Manganese	7439965	3313	Ferromanganese production by electric arc furnace process	Semi-sealed submerged-arc electric furnace	30300701	0.037 lb/MWh consumed by furn. operation	Controlled by scrubbers, calculated from source tests of total particulate emissions	107
Manganese	7439965	3313	Silicomanganese production by electric arc furnace process	Semi-sealed submerged-arc electric furnace	30300702	0.032 lb/ton of product	Controlled by scrubbers, calculated from source tests of total particulate emissions	107
Manganese	7439965	3313	Silicomanganese production by electric arc furnace process	Semi-sealed submerged-arc electric furnace	30300702	0.009 lb/MWh consumed by furn. operation	Controlled by scrubbers, calculated from source tests of total particulate emissions	107

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Manganese	7439965	332	Iron foundries	Cupola	30400301	0.25 lb/ton of iron	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	332	Iron foundries	Cupola	30400301	0.12 lb/ton of iron	Controlled by wet cap, calculated based on engineering judgement	107
Manganese	7439965	332	Iron foundries	Cupola	30400301	0.075 lb/ton of iron	Controlled by impingement scrubber, calculated based on engineering judgement	107
Manganese	7439965	332	Iron foundries	Cupola	30400301	0.012 lb/ton of iron	Controlled by high energy scrubber, calculated based on engineering judgement	107
Manganese	7439965	332	Iron foundries	Cupola	30400301	0.003 lb/ton of iron	Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	332	Iron foundries	Induction furnace	30400303	0.0225 lb/ton of iron	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	332	Iron foundries	Electric arc furnace	30400304	0.15 lb/ton of iron	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	332	Iron foundries	Electric arc furnace	30400304	0.0015 lb/ton of iron	Controlled by fabric filter (99%), calculated based on engineering judgement	107
Manganese	7439965	332	Steel foundries	Electric arc furnace	30400701	0.52 lb/ton of iron	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	332	Steel foundries	Electric arc furnace	30400701	0.026 lb/ton of iron	Controlled by ESP, calculated based on engineering judgement	107
Manganese	7439965	332	Steel foundries	Electric arc furnace	30400701	0.013 lb/ton of iron	Controlled by venturi scrubber, calculated based on engineering judgement	107
Manganese	7439965	332	Steel foundries	Electric arc furnace	30400701	0.0008 lb/ton of iron	Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	332	Steel foundries	Induction furnace	30400705	0.004 lb/ton of iron	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3321	Gray iron foundry operations	Entire process	304003	0.00015% lb/lb metal produced	Based on engineering estimates	13
Manganese	7439965	3339	Synthetic manganese production	Drying and grinding	303	8.9 lb/ton of material	Uncontrolled, calculated based on	107

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Manganese	7439965	3339	Synthetic manganese production	Drying and grinding	303	processed 0.009 lb/ton of material processed	engineering judgement Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	3339	Synthetic manganese production	Roasting	303	110 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3339	Synthetic manganese production	Roasting	303	0.22 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	3339	Synthetic manganese production	Packaging and handling	303	5.4 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	3339	Synthetic manganese production	Packaging and handling	303	0.0054 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	369	Dry cell battery manufacturing	Ore grinding	304	30 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	369	Dry cell battery manufacturing	Ore grinding	304	0.03 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	369	Dry cell battery manufacturing	Screening	304	1.0 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	369	Dry cell battery manufacturing	Screening	304	0.001 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	369	Dry cell battery manufacturing	Storage and handling	304	4.4 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Manganese	7439965	369	Dry cell battery manufacturing	Storage and handling	304	0.0044 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Manganese	7439965	3691	Battery manufacture	Entire process	30400505	0.004 lb/lb used	Based on engineering estimates	13
Manganese	7439965	4953	Municipal waste combustion	Stack	501001	0.05 lb/ton of waste incinerated	Uncontrolled, based on emission tests	107
Manganese	7439965	4953	Municipal waste combustion	Stack	501001	0.01 lb/ton of waste incinerated	Controlled by electrostatic precipitator, based on emission	107

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Manganese	7439965	4953	Municipal waste combustion	Incinerator stack	501001	0.007 kg/Mg munic. solid waste (dry wt.)	tests	98
Manganese	7439965	4953	Sewage sludge incineration	Stack, multiple-hearth	50100506	0.004 lb/ton of waste incinerated	Controlled by spray-baffle scrubber, based on material balance for model incinerator on emission tests	107
Manganese	7439965	4953	Sewage sludge incineration	Stack, fluidized-bed	50100505	0.0006 lb/ton of waste incinerated	Controlled by wet scrubber, based on emission tests	107
Manganese	7439965	806	Hospital waste incineration	Incinerator	315020	5.4 x 10E-4 lb/ton	Uncontrolled, test data	9
Mercury	7439976	7439976	Coal combustion, residential	Bituminous coal-fired boilers		20.7 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Mercury	7439976	7439976	Coal combustion, residential	Subbituminous coal-fired boilers		12.8 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Mercury	7439976	7439976	Coal combustion, residential	Anthracite coal-fired boilers		12.2 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Mercury	7439976	7439976	Coal combustion, residential	Lignite coal-fired boilers		10.0 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Mercury	7439976	7439976	Coal combustion, residential	Boilers fired by coal from northern plains region		18.1 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Mercury	7439976	7439976	Coal combustion, residential	Boilers fired by coal from rocky mountain region		20.8 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Mercury	7439976	7439976	Coal combustion, residential	Boilers fired by coal from appalachian region		16.0 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Mercury	7439976	7439976	Coal combustion, residential	Boilers fired by coal from interior region		10.5 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Mercury	7439976	7439976	Wood combustion, residential	Woodstove without baffle		0.13 g/Mg wood burned	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Mercury	7439976	7439976	General laboratory use	General handling, experimental, or other losses		40 kg/10E3 kg of Hg used	Control status unspecified, based on engineering judgement	113

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Mercury	7439976		Oil combustion	Residual oil-fired boiler, util./commerc/industr/resident	1	3.2 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Mercury	7439976		Oil combustion	Residual oil-fired boiler, util./commerc/industr/resident	1	3.2 lb/10E12 Btu	Controlled by multiclone, based on engineering judgement	36
Mercury	7439976		Oil combustion	Residual oil-fired boiler, util./commerc/industr/resident	1	2.4 lb/10E12 Btu	Controlled by ESP, based on engineering judgement	36
Mercury	7439976		Oil combustion	Residual oil-fired boiler, util./commerc/industr/resident	1	0.83 lb/10E12 Btu	Controlled by scrubber, based on engineering judgement	36
Mercury	7439976		Oil combustion	Distillate oil-fired boiler, util./commerc/industr/resident	1	3.0 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Mercury	7439976		Oil combustion	Distillate oil-fired boiler, util./commerc/industr/resident	1	3.0 lb/10E12 Btu	Controlled by multiclone, based on engineering judgement	36
Mercury	7439976		Oil combustion	Distillate oil-fired boiler, util./commerc/industr/resident	1	2.25 lb/10E12 Btu	Controlled by ESP, based on engineering judgement	36
Mercury	7439976		Oil combustion	Distillate oil-fired boiler, util./commerc/industr/resident	1	0.78 lb/10E12 Btu	Controlled by scrubber, based on engineering judgement	36
Mercury	7439976		Coal combustion	Bituminous coal-fired boiler, util./commerc/industr	1	16 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Mercury	7439976		Coal combustion	Bituminous coal-fired boiler, util./commerc/industr	1	16 lb/10E12 Btu	Controlled by multicyclone, based on engineering judgement	36
Mercury	7439976		Coal combustion	Bituminous coal-fired boiler, util./commerc/industr	1	8-16 lb/10E12 Btu	Controlled by ESP, based on engineering judgement	36
Mercury	7439976		Coal combustion	Bituminous coal-fired boiler, util./commerc/industr	1	0.96-7.4 lb/10E12 Btu	Controlled by scrubber, based on engineering judgement	36
Mercury	7439976		Coal combustion	Lignite coal-fired boilers, util./commerc/industr	1	21 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Mercury	7439976		Coal combustion	Lignite coal-fired boilers, util./commerc/industr	1	21 lb/10E12 Btu	Controlled by multiclone, based on engineering judgement	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Mercury	7439976		Coal combustion	util/commerc/industr	1	10-21 lb/10E12 Btu	engineering judgement	36
Mercury	7439976		Coal combustion	Lignite coal-fired boilers, util/commerc/industr	1	10-21 lb/10E12 Btu	Controlled by ESP, based on engineering judgement	36
Mercury	7439976		Coal combustion	Lignite coal-fired boilers, util/commerc/industr	1	1.2-9.6 lb/10E12 Btu	Controlled by scrubber, based on engineering judgement	36
Mercury	7439976		Coal combustion	Anthracite coal-fired boilers, util/commerc/industr	1	18 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Mercury	7439976		Coal combustion	Anthracite coal-fired boilers, util/commerc/industr	1	9-18 lb/10E12 Btu	Controlled by ESP, based on engineering judgement	36
Mercury	7439976		Coal combustion	Anthracite coal-fired boilers, util/commerc/industr	1	1.1-8.3 lb/10E12 Btu	Controlled by scrubber, based on engineering judgement	36
Mercury	7439976		Coal combustion	Anthracite coal-fired boilers, util/commerc/industr	1	18 lb/10E12 Btu	Controlled by multiclone, based on engineering judgement	36
Mercury	7439976		Application of paints	Entire process	402	650 kg/10E3 kg of contained Mg	Uncontrolled, based on engineering judgement	113
Mercury	7439976	0721	Agricultural spraying	Entire process		500 kg/10E3 kg of contained Mg	Uncontrolled, based on engineering judgement	113
Mercury	7439976	1099	Mining	Entire process	303024	0.005 kg/10E3 kg of ore mined	Uncontrolled, based on questionnaire survey responses by mine operators in 1960s	113
Mercury	7439976	1211	Coal refuse pile burning	Refuse pile		4.6 x 10E-9 kg/hr/Mg burning coal refuse		136
Mercury	7439976	2812	Chlorine production - mercury cell process (chloralkali)	End-box ventilation	301008	0.005 kg/10E3 kg of Cl2 produced	Uncontrolled, based on source tests	113
Mercury	7439976	2812	Chlorine production - mercury cell process (chloralkali)	Cell room ventilation, ridge vent	301008	0.002 kg/10E3 kg of Cl2 produced	Uncontrolled, based on source tests	113
Mercury	7439976	2812	Chlorine production - mercury cell process (chloralkali)	Cell room ventilation, fan ventilation (one fan)	301008	0.0003 kg/10E3 kg of Cl2 produced	Uncontrolled, based on source tests	113
Mercury	7439976	2812	Chlorine production - mercury cell process (chloralkali)	Hydrogen stream losses	301008	0.01 kg/10E3 kg of Cl2 produced	Uncontrolled, based on material balance	113
Mercury	7439976	2812	Chlorine production - mercury cell process (chloralkali)	Ventilation losses	301008	0.02 kg/10E3 kg of Cl2 produced	Uncontrolled, based on material balance	113

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Mercury	7439976	2812	Chlorine production - mercury cell process (chloralkali)	Hydrogen stream	301008	0.001 to 0.005 kg/10E3 kg Cl ₂ produced	Uncontrolled, based on source tests	113
Mercury	7439976	2812	Chlorine production - mercury cell process (chloralkali)	Hydrogen stream	301008	0.0005 kg/103 kg of Cl ₂ produced	Controlled by carbon adsorber, based on source tests	113
Mercury	7439976	2911	Oil shale retorting	Entire process		2.2 x 10E-4 lbs/barrel oil produced	Includes Hg compound form, assumes fac. using 13,000 tons/day raw shale to prod. 12,000 bbl/day oil	40
Mercury	7439976	3339	Primary ore processing	Smelter stack	303	0.16 kg/10E3 kg ore processed	Uncontrolled, based on stack tests (early 1970s)	113
Mercury	7439976	3339	Primary ore processing	Hoisting operations	303	0.01 kg/10E3 kg ore processed	Uncontrolled, based on stack tests (early 1970s)	113
Mercury	7439976	3339	Primary ore processing	Retort operation	303	0.001 kg/10E3 kg ore processed	Uncontrolled, based on stack tests (early 1970s)	113
Mercury	7439976	3341	Secondary mercury production	Entire process, production by vacuum distillation	304	0.026 g/kg of Hg produced	Control status and basis unspecified	112
Mercury	7439976	3341	Secondary mercury production	Entire process	304	20 kg/10E3 kg Hg processed	Uncontrolled, based on engineering judgement	113
Mercury	7439976	3600	Manufacture of electrical apparatus	Handling of Hg or its compounds	3	4 kg/10E3 kg Hg used	Uncontrolled, based on engineering judgement	113
Mercury	7439976	3690	Battery manufacture	Entire process	3	0.0007 kg/kg Hg used	Control status unspecified, based on emission inventory data for three facilities	111
Mercury	7439976	3800	Instrument manufacture	Breakage, spillage and other sources	399999	9 kg/10E3 kg of contained Hg	Uncontrolled, based on survey responses (1960s)	113
Mercury	7439976	4953	Municipal waste combustion	Mass burn, water wall facility	501001	8163 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Mercury	7439976	4953	Municipal waste combustion	Mass burn, refractory facility	501001	6770 mg/kg controlled particulate emis.	Controlled by ESP, based on source test	118
Mercury	7439976	4953	Municipal waste combustion	Refuse-derived fuel facility	501001	868 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Mercury	7439976	4953	Municipal waste combustion	Modular facility	501001	2340 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Mercury	7439976	4953	Municipal waste combustion	Mass burn, water wall facility	501001	5800 mg/kg controlled	Controlled by fabric filter,	118

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Mercury	7439976	4953	Municipal waste combustion	Mass burn, refractory facility	501001	particulate emis. 4800 mg/kg controlled particulate emis.	assumes 50% Hg control efficiency Controlled by fabric filter, assumes 50% Hg control efficiency	118
Mercury	7439976	4953	Municipal waste combustion	Refuse-derived fuel facility	501001	620 mg/kg controlled particulate emis.	Controlled by fabric filter, assumes 50% Hg control efficiency	118
Mercury	7439976	4953	Municipal waste combustion	Modular facility	501001	1700 mg/kg controlled particulate emis.	Controlled by fabric filter, assumes 50% Hg control efficiency	118
Mercury	7439976	4953	Municipal waste combustion	Incinerator stack	501001	0.001 kg/Mg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, calculated based on engineering judgement	98
Mercury	7439976	4953	Municipal waste combustion	Mass burn facility	501001	1.8 ug/g charged material	Uncontrolled	40
Mercury	7439976	4953	Municipal waste combustion	Refuse derived fuel facility	501001	1.1 ug/g charged material	Uncontrolled	40
Mercury	7439976	4953	Municipal waste combustion	Modular incineration	501001	2.5 ug/g charged material	Uncontrolled	40
Mercury	7439976	4953	Sewage sludge incineration	Stack	50100506	7 mg/kg dry sludge	Assumes 100% emitted, conventional scrubbers have low Hg concentration efficiency	155
Mercury	7439976	8000	Application of pharmaceuticals containing mercuric compounds	Entire process		200 kg/10E3 kg of Hg applied	Uncontrolled, based on engineering judgement	113
Mercury	7439976	8021	Use of dental preparations	Handling losses		10 kg/10E3 kg of Hg handled	Control status unspecified, based on engineering judgement	113
Methanol	67561	2861	Charcoal manufacture	Overall process	30100601	72 g/kg charcoal manufactured	Uncontrolled, range of 67-76 g/kg, engineering judgement	124
Methanol	67561	2861	Charcoal manufacture	Batch kiln	30100603	11 g/kg charcoal	Controlled, afterburner, engineering judgement	124
Methanol	67561	2861	Charcoal manufacture	Continuous furnace	30100604	3.8 g/kg charcoal	Controlled, afterburner, engineering judgement	124
Methanol	67561	2869	Glycol ether production - methanol process	Vacuum system vent	30125302	0.063 g/kg glycol ether produced	Uncontrolled, approximation based on data from one plant	142
Methyl acetate	79209	2869	Crude terephthalic acid production	Reactor vent	30103102	8 g/kg crude TPA produced	Uncontrolled	62
Methyl chloride	74873	2869	Acetaldehyde production	Off-gas vent	30112014	1.1 lb/1000 lb acetaldehyde	Controlled, low pressure scrubber,	143

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Methyl chloride	74873	2869	Chloromethane production - methanol/CH ₃ Cl chlorination	Inert-gas purge vent for condenser assoc. w/ methyl chloride prod. recovery	30112510	1.5 kg/Mg total chloromethanes prod.	data from one plant	72
Methyl chloride	74873	2869	Chloromethane production - methane chlorination	Recycled-methane inert-gas purge vent	30112511	2.04 kg/Mg total chloromethanes capac.	Uncontrolled, based on information supplied by one producer	71
Methyl chloride	74873	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	5.16 mg/kg dry sludge	One test, scrubber	101
Methyl chloroform	71556		Degreasing operations using methyl chloroform	Cold cleaner		0.86 kg/kg (fresh) virgin solvent used	Uncontrolled, considers recycle, based on material balance	102
Methyl chloroform	71556		Degreasing operations using methyl chloroform	Cold cleaner		0.86 kg/kg (fresh) virgin solvent used	Control, by 0.7 freeboard ratio + drainage rack w/ 15 sec. drain time, considers recyl., mater. bal.	102
Methyl chloroform	71556		Waste oil combustion	Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	0.039 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, assumes 97% DRE	55
Methyl chloroform	71556		Use as a solvent	General	401	1.0 lb/lb used	Assume all is eventually released to atmosphere	13
Methyl chloroform	71556		Degreasing operations using methyl chloroform	Open top vapor degreaser	40100202	0.93 kg/kg (fresh) virgin solvent used	Uncontrolled, considers recycle, based on material balance	76
Methyl chloroform	71556		Degreasing operations using methyl chloroform	Open top vapor degreaser	40100202	0.89 kg/kg (fresh) virgin solvent used	Controlled by refrigerated freeboard chiller, considers recycle, based on material balance	76
Methyl chloroform	71556		Degreasing operations using methyl chloroform	Conveyorized vapor degreaser	40100222	0.96 kg/kg (fresh) virgin solvent used	Uncontrolled, considers recycle, based on material balance	76
Methyl chloroform	71556		Degreasing operations using methyl chloroform	Conveyorized vapor degreaser	40100222	0.91 kg/kg (fresh) virgin solvent used	Controlled by carbon adsorber or refrig. freeboard chiller, considers recycle, material balance	76
Methyl chloroform	71556	2869	Ethylene dichloride production - oxyhydrochlorination	Absorption	30112501	0.005 g/kg produced	Control unclear, based on mass balance and testing	95
Methyl chloroform	71556	2869	Methyl chloroform production from vinyl chloride	Intermediate process storage tank vents	30112525	0.09 g/kg methyl chloroform produced	Uncontrolled, based on hypothetical plant with 136,000 kg/yr production capacity	1

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Methyl chloroform	71556	2869	Methyl chloroform production from vinyl chloride	Product storage tank vents	30112525	0.40 g/kg methyl chloroform produced	Uncontrolled, based on hypothetical plant with 136,000 Mg/yr production capacity	1
Methyl chloroform	71556	2869	Methyl chloroform production from vinyl chloride	Handling (loading of tank trucks and tank cars)	30112525	0.61 g/kg methyl chloroform produced	Assumes submerged loading, based on hypothetical plant with 136,000 Mg/yr production capacity	1
Methyl chloroform	71556	2869	Methyl chloroform production from vinyl chloride	Intermediate process storage tank vents	30112525	0.01 g/kg methyl chloroform produced	Controlled by refrigeration, condenser, based on hypothetical plant with 136,000 Mg/yr production capacity	1
Methyl chloroform	71556	2869	Methyl chloroform production from vinyl chloride	Product storage tank vents	30112525	0.061 g/kg methyl chloroform produced	Controlled by refrigeration, condenser, based on hypothetical plant with 136,000 Mg/yr production capacity	1
Methyl chloroform	71556	2869	Methyl chloroform production from vinyl chloride	Handling (loading of tank trucks and tank cars)	30112525	0.09 g/kg methyl chloroform produced	Controlled by refrigeration, condenser, based on hypothetical plant with 136,000 Mg/yr production capacity	1
Methyl chloroform	71556	2869	Methyl chloroform production from ethane	Recycle storage tank vents	30112525	0.09 g/kg methyl chloroform produced	Uncontrolled, based on hypothetical plant with 29,500 Mg/yr production capacity	1
Methyl chloroform	71556	2869	Methyl chloroform production from ethane	Recycle storage tank vents	30112525	0.01 g/kg methyl chloroform produced	Controlled by refrigeration, condenser, based on hypothetical plant with 29,500 Mg/yr production capacity	1
Methyl chloroform	71556	2869	Methyl chloroform production from ethane	Product storage tank vents	30112525	0.40 g/kg methyl chloroform produced	Uncontrolled, based on hypothetical plant with 29,500 Mg/yr production capacity	1
Methyl chloroform	71556	2869	Methyl chloroform production from ethane	Product storage tank vents	30112525	0.061 g/kg methyl chloroform produced	Controlled by refrigeration, condenser, based on hypothetical plant with 29,500 Mg/yr production capacity	1
Methyl chloroform	71556	2869	Methyl chloroform production from ethane	Handling (loading of tank trucks and tank cars)	30112525	0.61 g/kg methyl chloroform produced	Assumes submerged loading, based on hypothetical plant with 29,500 Mg/yr production capacity	1
Methyl chloroform	71556	2869	Methyl chloroform production from ethane	Handling (loading of tank trucks and tank cars)	30112525	0.09 g/kg methyl chloroform produced	Controlled by refrigeration, condenser, based on hypothetical plant with 29,500 Mg/yr production capacity	1
Methyl chloroform	71556	2869	Methyl chloroform production by hydrochlorination	Heat transfer	30112525	9.0 g/kg produced	Control uncertain, based on mass balance and tests	95
Methyl chloroform	71556	2869	Methyl chloroform production	Separation	30112525	0.5 g/kg produced	Control uncertain, based on mass	95

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Methyl chloroform	71556	2869	by hydrochlorination	Distillation vents	30112528	0.14 g/kg methyl chloroform produced	balance and tests	1
Methyl chloroform	71556	2869	Methyl chloroform production from ethene	Distillation vents	30112528	0.003 g/kg methyl chloroform produced	Uncontrolled, based on hypothetical plant with 29,500 Mg/yr production capacity	1
Methyl chloroform	71556	2869	Methyl chloroform production from ethene	Condenser vents/distillation column	30112528	0.00072 lb/lb produced	Controlled by incinerator, based on hypothetical plant with 29,500 Mg/yr production capacity	13
Methyl chloroform	71556	2869	Methyl chloroform production	Fugitive - equipment leaks	30112529	0.0010 lb/lb produced	From State air emission files	13
Methyl chloroform	71556	2869	Methyl chloroform production	Storage	407220	0.00227 lb/lb produced	Engineering estimate	13
Methyl chloroform	71556	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	1.3 mg/kg dry sludge	From State air emission files	101
Methyl chloroform	71556	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	0.04 mg/kg dry sludge	Average of six tests, scrubber	101
Methyl chloroform	71556	4953	Wastewater treatment	POTW	50100701	0.61 Mg/Mg methyl chloroform in influent	One test, scrubber	59
Methyl ethyl ketone	78933	264	Paper coating	Coating line	40201301	8.01 x 10 ⁻⁵ lb/ft paper coated	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	11
Methyl ethyl ketone	78933	2865	Acetone/phenol manufacture from cumene	Cumene peroxidation vent	30102002	0.05 g/kg phenol	Based on one sampling program, sampled at discharge of afterburner	125
Methyl ethyl ketone	78933	2865	Acetone/phenol manufacture from cumene	Cleavage section vents (combined)	30120211	1.8 x 10 ⁻⁵ g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Methyl ethyl ketone	78933	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	5.38 mg/kg dry sludge	Controlled (unspecified), based on test data, 1977 data, average factors	101
Methyl methacrylate	80626	7699	Tank truck cleaning	Entire process		0.071 lb/truck	Average of three tests, scrubber	97
Methyl styrene		2865	Acetone/phenol manufacture from cumene	Cumene peroxidation vent	30102002	0.0001 g/kg phenol	Emission measurement	125
Methyl styrene		2865	Acetone/phenol manufacture from cumene	Storage tank vents	407084	0.002 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Methylene chloride	75092		Use of aerosol products	Entire process		1 kg/kg MC contained in product applied	Uncontrolled, based on engineering judgement	69
Methylene chloride	75092		Aerosol packaging	Entire process		9.7 kg/Mg of MC consumed	Uncontrolled, based on aggregate emissions/consumption for 10 questionnaire respondents	74, 75
Methylene chloride	75092		Use as paint and varnish remover	General	401	1.0 lb/lb used	Assume all is eventually released to atmosphere	13
Methylene chloride	75092		Degreasing operations using MC	Open top vapor degreasers	40100204	0.93 kg emit./kg fresh (virgin) MC used	Uncontrolled, considers recycle, material balance	76
Methylene chloride	75092		Degreasing operations using MC	Open top vapor degreasers	40100204	0.89 kg emit./kg fresh (virgin) MC used	Controlled by refrigerated freeboard chiller, considers recycle, material balance	76
Methylene chloride	75092		Degreasing operations using MC	Conveyorized vapor degreaser	40100224	0.96 kg emit./kg fresh (virgin) MC used	Uncontrolled, considers recycle, material balance	76
Methylene chloride	75092		Degreasing operations using MC	Conveyorized vapor degreaser	40100224	0.91 kg emit./kg fresh (virgin) MC used	Controlled by carbon adsorber or refrig. freeboard chiller, considers recycle, material balance	76
Methylene chloride	75092		Degreasing operations using MC	Cold cleaners	40100302	0.89 kg emit./kg fresh (virgin) MC used	Uncontrolled, considers recycle, based on material balance	76
Methylene chloride	75092		Degreasing operations using MC	Cold cleaners	40100302	0.87 kg emit./kg fresh (virgin) MC used	Contr = 0.7 freeboard ratio + drainage rack w/ 15 sec. drain time, considers recycle, mater. balance	76
Methylene chloride	75092		Paint stripping	Dip tanks at durable goods manufacturers	402	0.6 kg/kg MC contained in stripper used	Uncontrolled, based on material balances for 3 auto manufac. facilities & 1 aircraft maint. facility	157
Methylene chloride	75092		Paint stripping	Dip tanks at durable goods manufacturers	402	0.2 kg/kg MC contained in stripper used	Controlled by water seal and 15 sec. drain time, assumes 60% emission reduction	157
Methylene chloride	75092		Paint stripping	Floor stripping	402	1 kg/kg MC contained in stripper used	Uncontrolled, based on questionnaire responses for auto plants and engineering judgement	157
Methylene chloride	75092	2821	Use in plastics processing	General	301018	1.0 lb/lb used	Assume all is eventually released to atmosphere	13

POLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Methylene chloride	75092	2851	Paint stripper formulation	Entire process	301999	0.05 Mg/Mg of MC consumed	Uncontrolled, based on aggregate estimates of emissions and consumption at formulation facilities	157
Methylene chloride	75092	2869	Acetaldehyde production	Off-gas vent	30112014	0.1 lb/1000 lb acetaldehyde	Controlled, low pressure scrubber, data from one plant	143
Methylene chloride	75092	2869	Ethylene dichloride production - oxyhydrochlor. of ethylene	Absorption unit	30112501	<0.003 g/kg EDC produced	Control status and basis unspecified	95
Methylene chloride	75092	2869	Ethylene dichloride production - oxyhydrochlor. of ethylene	Separation unit	30112501	0.0015 g/kg EDC produced	Control status and basis unspecified	95
Methylene chloride	75092	2869	Methylene chloride production	Entire process	30112510	0.003 Mg/Mg MC produced	Reflects 1983 controls, based on 1983 aggregate emis. production totals for MC producers	69
Methylene chloride	75092	2869	Chloromethane production - methanol/CH ₃ Cl chlorination	Inert-gas purge vent for condenser associated with MC distillation	30112510	0.019 kg/Mg total chloromethanes prod.	Uncontrolled, hypoth. fac. producing 25% methyl chloride, 48% MC, 25% chloroform, & 2% carbon tet.	72
Methylene chloride	75092	2869	Chloromethane production - methane chlorination	Recycled-methane inert-gas purge vent	30112511	0.051 kg/Mg total chloromethanes capac.	Uncontrolled, based on information supplied by one producer	71
Methylene chloride	75092	2869	Methyl chloride chlorination	Inert gas purge vent/product recovery condenser	30112511	2.6 x 10E-5 lb/lb product	Derived from site visit	13
Methylene chloride	75092	2869	Methane chlorination	Inert gas purge vent/product recovery condenser	30112511	1.4 x 10E-4 lb/lb product	Derived from site visit	13
Methylene chloride	75092	2869	Methyl chloride chlorination	Fugitive	30112514	4.73 x 10E-4 lb/lb product	Derived from site visit	13
Methylene chloride	75092	2869	Methane chlorination	Fugitive	30112514	3.2 x 10E-4 lb/lb product	Derived from site visit	13
Methylene chloride	75092	2869	Methyl chloride chlorination	Storage	407060	2.46 x 10E-3 lb/lb product	Derived from site visit	13
Methylene chloride	75092	2869	Methane chlorination	Storage	407060	1.02 x 10E-3 lb/lb product	Derived from site visit	13
Methylene chloride	75092	3086	Production of flexible slabstock polyurethane foam	Storage tank emissions	30101894	0.003 kg/kg of MC consumed	Uncontrolled, calculated from questionnaire responses using AP-42 equations	73
Methylene chloride	75092	3086	Production of flexible	Storage tank emissions	30101894	0.0005 kg/kg of MC consumed	Controlled by refrigerated	73

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Methylene chloride	75092	3086	slabstock polyurethane foam	Entire process	30101899	1 kg/kg MC consumed	condenser, based on engineering judgement	69
Methylene chloride	75092	3086	Production of polyurethane foam	Process vents (foam tunnel, curing area)	30101899	0.06 kg/kg of MC consumed	Uncontrolled, based on engineering judgement	73
Methylene chloride	75092	3086	Production of flexible slabstock polyurethane foam	Equipment leak emissions	30101899	0.017 kg/kg of MC consumed	Uncontrolled, based on facility questionnaire responses and engineering judgement	73
Methylene chloride	75092	3086	Production of flexible slabstock polyurethane foam	Process vents (foam tunnel, curing area)	30101899	0.42 kg/kg of MC consumed	Uncontrolled, based on SOCM VOC emission factors and questionnaire responses	73
Methylene chloride	75092	3086	Production of flexible slabstock polyurethane foam	Equipment leak emissions	30101899	0.005 kg/kg of MC consumed	Curing area vents uncontrolled, foam tunnel vents control. by incl. & carbon adsorb, engineering judg.	73
Methylene chloride	75092	3679	Manufacture of printed circuit boards	Photoresist stripping	40100302	0.90 kg/kg fresh (virgin) MC used	Controlled by leak detection and repair, based on engineering judgement	76
Methylene chloride	75092	3679	Manufacture of printed circuit boards	Photoresist stripping	40100302	0.78 kg/kg fresh (virgin) MC used	Uncontrolled, based on material balance	76
Methylene chloride	75092	3711	Paint stripping	Spray booth maintenance at automobile assembly plants	40201605	0.8 kg/kg MC contained in stripper used	Controlled by carbon adsorbent, based on material balance	157
Methylene chloride	75092	4500	Paint stripping	Aircraft (military and commercial)	490	0.8 kg/kg MC contained in stripper used	Uncontrolled, based on questionnaire responses and engineering judgement	157
Methylene chloride	75092	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	2.3 mg/kg dry sludge	Uncontrolled, based on material balances for 2 commercial aircraft maintenance facilities	101
Methylene chloride	75092	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	0.07 mg/kg dry sludge	Average of five tests, scrubber	101
Methylene chloride	75092	4953	Wastewater treatment	POTW	50100701	0.52 Mg/Mg methylene chlor. in influent	One test, scrubber	59
Methylene chloride	75092	5169	Chemical distribution facilities	Storage emissions	4	0.001 Mg/Mg MC distributed	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	69

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Methylene chloride	75092	5169	Chemical distribution facilities	Handling emissions (filling losses)	4	0.0009 kg/Mg MC distributed	1983 Partially controlled, based on nationwide emiss. & distribution estim. for dist. facilities in 1983	69
Methylene chloride	75092	7384	Photographic film processing	Splicing glue		1 kg/kg MC contained splicing glue appl.	Uncontrolled, based on engineering judgement	69
Methylene chloride	75092	7530	Degreasing operations using MC	Carburetor cleaners	40100302	0.89 kg emit./kg fresh (virgin) MC used	Uncontrolled, considers recycle, material balance	76
Methylene chloride	75092	7530	Degreasing operations using MC	Carburetor cleaners	40100302	0.76 kg emit./kg fresh (virgin) MC used	Controlled by water cover, considers recycle, material balance	76
Methylene chloride	75092	7641	Paint stripping	Furniture stripping (household and commercial)	490	1 kg/kg MC contained in stripper used	Uncontrolled, based on engineering judgement	157
Methylene chloride	75092	9711	Paint stripping	Dip tanks at military installations	490	0.4 kg/kg MC contained in stripper used	Uncontrolled, based on material balances for 5 military installations using dip tanks	157
Methylene chloride	7439987		Wood combustion, residential	Woodstove without baffle		0.23 g/Mg wood burned	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Methylene chloride	7439987	226	Woven fabric finishing	Tenter frames - resin finishing	330001	0.43 mg/kg fabric	Uncontrolled, average of three tests	52
Methylene chloride	7439987	226	Woven fabric finishing	Thermosol dyeing	330001	0.030 mg/kg fabric	Uncontrolled, average of three tests	52
Methylene chloride	7439987	226	Woven fabric finishing	Heat setting	330001	0.24 mg/kg fabric	Uncontrolled, based on test data	52
Methylene chloride	7439987	226	Woven fabric finishing	Curing oven - resin finish	330001	0.067 mg/kg fabric	Uncontrolled, average of two tests	52
Methylene chloride and benzofuran, total	4953		Sewage sludge incineration	Multiple hearth furnace	50100506	0.04 ug/kg dry sludge	Average of two tests, scrubber	101
Naphthalene	91203		Coke by-product plants	Entire process		0.00592 kg/Mg coke	Estimated from capacity and wt. percent naphthalene (8.8)	99
Naphthalene	91203		Naphthalene production	Process emissions		0.239 kg/Mg naphthalene produced	Based on POM emissions and 87% naphthalene	99
Naphthalene	91203		Naphthalene production	Storage		0.0227 kg/Mg produced	Based on data from State files and engineering judgement	99
Naphthalene	91203		Waste oil combustion	Waste oil-fired boilers (<150	1	0.018 g/liter oil burned	Uncontrolled, based on emissions	55

POSS. POLLUTANT	CAN. MATERIAL	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Benzo(a)anthracene	91203	226	Woven fabric finishing	million Btu/h) or space heaters	330001	1.0 mg/kg fabric	data and engineering judgement, assumes 97% DRE	52
Benzo(a)anthracene	91203	226	Woven fabric finishing	Thermoset dyeing	330001	1.7 mg/kg fabric	Uncontrolled, average of two tests	52
Benzo(a)anthracene	91203	226	Woven fabric finishing	Trimer frames - resin finish	330001	3.0 mg/kg fabric	Uncontrolled, average of three tests	52
Benzo(a)anthracene	91203	2491	Wood preserving	Curling ovens - resin finish	330001	2000 mg/m ³ gas vented	Average value	6
Benzo(a)anthracene	91203	2491	Wood preserving	Thermal (pan) evaporation of pentachlorophenol wastewater	307005	2500 mg/m ³ gas vented	Average value	6
Benzo(a)anthracene	91203	2491	Wood preserving	Thermal (pan) evaporation of creosote wastewater	307005	290 ug/m ³ stack gas	Controlled with baghouse, average value	6
Benzo(a)anthracene	91203	2491	Wood preserving	Incineration of waste	307005	2.6 mg/m ³ gas leaked	Average of 3 measurements	6
Benzo(a)anthracene	91203	2491	Wood preserving	Penta treating cylinder fugitives	307005	2.8 mg/m ³ gas leaked	One measurement	6
Benzo(a)anthracene	91203	2491	Wood preserving	Creosote treating cylinder fugitives	307005	1.06 lbs/hr	Based on one sampling program at one facility	10
Benzo(a)anthracene	91203	2491	Log treating (pressure treating)	Creosote cool-down	30700501	2.2 lbs/hr	Based on one sampling program at one facility	10
Benzo(a)anthracene	91203	2491	Log treating	Creosote conditioning	30700597	2.29 lbs/hr	Based on one sampling program at one facility	10
Benzo(a)anthracene	91203	2491	Log treating	Pentachlorophenol conditioning	30700597	0.99 lbs/hr	Based on one sampling program at one facility	10
Benzo(a)anthracene	91203	2491	Log treating	Pentachlorophenol cool-down	30700597	0.24 lbs/hr	Based on one sampling program at one facility	10
Benzo(a)anthracene	91203	2491	Log treating	Pentachlorophenol treating - fugitive	30700597	9.6 x 10 ⁻⁷ lb/ft paper coated	Based on one sampling program, sampled at discharge of afterburner	11
Benzo(a)anthracene	91203	264	Paper coating	Coating line	301019	0.60 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Benzo(a)anthracene	91203	2645	Phthalic anhydride production - naphthalene process	Storage tanks	301019	0.006 g/kg PA produced	Controlled, test data and engineering judgement	120
Benzo(a)anthracene	91203	2645	Phthalic anhydride production - naphthalene process	Storage tanks	301019			

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Naphthalene	91203	2865	Acetone/phenol manufacture from cumene	Cumene peroxidation vent	30102002	0.0001 g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Naphthalene	91203	2869	Manufacture of acetone and phenol from cumene	Cumene peroxidation vent	30109151	<0.0001 g naphthalene/kg phenol produced	Controlled (adsorption or condensation), based on industry sources	15
Naphthalene	91203	2869	Propylene oxide production by chlorohydrination	Absorption	30120502	0.08 g/kg produced	Control unclear, based on mass balance and testing	95
Naphthalene	91203	2911	Petroleum refinery	Fugitives	306	0.33 lb/hr	Based on weighted emission stream content	92
Naphthalene	91203	3334	Primary aluminum production	Soderberg potline	303001	274 g/ton Al produced	Single test report, one plant, controlled, baghouse	91
Naphthalene	91203	3334	Primary aluminum production	Soderberg potline	303001	62 g/ton Al produced	Single test report, one plant, controlled, baghouse, material that escaped primary control system	91
Naphthalene	91203	4953	Wastewater treatment	POTW	50100701	0.16 kg/kg naphthalene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Naphthoquinone	130154	2865	Phthalic anhydride production - naphthalene process	Main process incinerator	301019	0.69 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Naphthoquinone	130154	2865	Phthalic anhydride production - naphthalene process	Main process incinerator	301019	0.02 g/kg PA produced	Controlled, test data and engineering judgement	120
Naphthoquinone	130154	2865	Phthalic anhydride production - naphthalene process	Secondary incinerator	301019	6.6 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Naphthoquinone	130154	2865	Phthalic anhydride production - naphthalene process	Secondary incinerator	301019	0.07 g/kg PA produced	Controlled (not specified), test data and engineering judgement	120
Nickel	7440020		Coal combustion, residential	Bituminous coal-fired boilers		129 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Nickel	7440020		Coal combustion, residential	Anthracite coal-fired boilers		224 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Nickel	7440020		Coal combustion, residential	Subbituminous coal-fired		73.5 lb/10E12 Btu	Uncontrolled, highly variable,	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Mickel	7440020		Coal combustion, residential	boilers		116 lb/10E12 Btu	calculated based on engineering judgment	36
Mickel	7440020		Coal combustion, residential	Lignite coal-fired boilers		107 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgment	36
Mickel	7440020		Coal combustion, residential	Boilers fired by coal from northern plains region		90.6 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Mickel	7440020		Coal combustion, residential	Boilers fired by coal from rocky mountain region		133 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Mickel	7440020		Coal combustion, residential	Boilers fired by coal from Appalachian region		246 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Mickel	7440020		Coal combustion, residential	Boilers fired by coal from interior region		1.7 g/Mg wood burned	Uncontrolled, based on one study, nonaffiliated stove burning green pine	58
Mickel	7440020		Oil combustion	Woodstove without baffle		1260 lb/10E12 Btu	Uncontrolled, based on engineering judgment	36
Mickel	7440020		Oil combustion	Residual oil-fired boilers, util./commerc./industr./residential	1	642.6 lb/10E12 Btu	Controlled by multistage, based on engineering judgment	36
Mickel	7440020		Oil combustion	Residual oil-fired boilers, util./commerc./industr./residential	1	352.8 lb/10E12 Btu	Controlled by ESP, based on engineering judgment	36
Mickel	7440020		Oil combustion	Residual oil-fired boilers, util./commerc./industr./residential	1	50.4 lb/10E12 Btu	Controlled by scrubber, based on engineering judgment	36
Mickel	7440020		Oil combustion	Distillate oil-fired boilers, util./commerc./industr./residential	1	170 lb/10E12 Btu	Uncontrolled, based on engineering judgment	36
Mickel	7440020		Oil combustion	Distillate oil-fired boilers, util./commerc./industr./residential	1	86.7 lb/10E12 Btu	Controlled by multistage, based on engineering judgment	36
Mickel	7440020		Oil combustion	Distillate oil-fired boilers, util./commerc./industr./residential	1	47.6 lb/10E12 Btu	Controlled by ESP, based on engineering judgment	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Nickel	7440020		Oil combustion	el Distillate oil-fired boilers, util/commerc/industr/resident	1	6.8 lb/10E12 Btu	Controlled by scrubber, based on engineering judgment	36
Nickel	7440020		Coal combustion	el Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	1030-1290 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	522-654 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	280-352 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	37-46 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	840-1290 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	425-654 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	228-352 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	30-46 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Bituminous coal-fired cyclone boilers, util/commerc/industr	1	174-1290 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Bituminous coal-fired cyclone boilers, util/commerc/industr	1	88-654 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Bituminous coal-fired cyclone boilers, util/commerc/industr	1	47-352 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTE	REFERENCE
Nickel	7440020		Coal combustion	Bituminous coal-fired cyclone boilers, util/commerc/industr	1	6.3-46 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Bituminous coal-fired stoker boilers, util/commerc/industr	1	775-1290 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Bituminous coal-fired stoker boilers, util/commerc/industr	1	392-654 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Bituminous coal-fired stoker boilers, util/commerc/industr	1	211-352 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	928-1160 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	470-587 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	252-316 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	33-42 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	154-1160 lb/10E12 Btu	Uncontrolled, based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	362-587 lb/10E12 Btu	Controlled with multiclone, based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	205-316 lb/10E12 Btu	Controlled with ESP, based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	27-42 lb/10E12 Btu	Controlled with scrubber, based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired cyclone boilers, util/commerc/industr	1	157-1160 lb/10E12 Btu	Uncontrolled, based on engineering judgment	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Nickel	7440020		Coal combustion	Bituminous coal-fired cyclone boilers, util//commerc/industr	1	6.3-46 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Bituminous coal-fired stoker boilers, util//commerc/industr	1	775-1200 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Bituminous coal-fired stoker boilers, util//commerc/industr	1	392-654 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Bituminous coal-fired stoker boilers, util//commerc/industr	1	211-352 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util//commerc/industr	1	928-1160 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util//commerc/industr	1	470-587 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util//commerc/industr	1	252-316 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired pulverized dry bottom boilers, util//commerc/industr	1	33-42 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util//commerc/industr	1	154-1160 lb/10E12 Btu	Uncontrolled, based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util//commerc/industr	1	382-587 lb/10E12 Btu	Controlled with multiclone, based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util//commerc/industr	1	205-316 lb/10E12 Btu	Controlled with ESP, based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired pulverized wet bottom boilers, util//commerc/industr	1	27-42 lb/10E12 Btu	Controlled with scrubber, based on engineering judgment	36
Nickel	7440020		Coal combustion	Lignite coal-fired cyclone boilers, util//commerc/industr	1	157-1160 lb/10E12 Btu	Uncontrolled, based on engineering judgment	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Nickel	7440020		Coal combustion	Lignite coal-fired cyclone boilers, util/commerc/industr	1	79-587 lb/10E12 Btu	Controlled with multiclone, based on engineering judgement	36
Nickel	7440020		Coal combustion	Lignite coal-fired cyclone boilers, util/commerc/industr	1	43-316 lb/10E12 Btu	Controlled with ESP, based on engineering judgement	36
Nickel	7440020		Coal combustion	Lignite coal-fired cyclone boilers, util/commerc/industr	1	5.6-42 lb/10E12 Btu	Controlled with scrubber, based on engineering judgement	36
Nickel	7440020		Coal combustion	Lignite coal-fired stoker boilers, util/commerc/industr	1	696-1160 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Nickel	7440020		Coal combustion	Lignite coal-fired stoker boilers, util/commerc/industr	1	352-587 lb/10E12 Btu	Controlled with multiclone, based on engineering judgement	36
Nickel	7440020		Coal combustion	Lignite coal-fired stoker boilers, util/commerc/industr	1	189-316 lb/10E12 Btu	Controlled with ESP, based on engineering judgement	36
Nickel	7440020		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	1790-2240 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Nickel	7440020		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	906-1160 lb/10E12 Btu	Controlled with multiclone, based on engineering judgement	36
Nickel	7440020		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	487-610 lb/10E12 Btu	Controlled with ESP, based on engineering judgement	36
Nickel	7440020		Coal combustion	Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	64-81 lb/10E12 Btu	Controlled with scrubber, based on engineering judgement	36
Nickel	7440020		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	1460-2240 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Nickel	7440020		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	739-1160 lb/10E12 Btu	Controlled with multiclone, based on engineering judgement	36
Nickel	7440020		Coal combustion	Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	597-610 lb/10E12 Btu	Controlled with ESP, based on engineering judgement	36
Nickel	7440020		Coal combustion	Anthracite coal-fired	1	53-81 lb/10E12 Btu	Controlled with scrubber, based on	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Nickel	7440020		Coal combustion	pulverized wet bottom boilers, util/commerc/industr	1	303-2240 lb/10E12 Btu	engineering judgement	36
Nickel	7440020		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	153-1140 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Nickel	7440020		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	B2-610 lb/10E12 Btu	Controlled with multiclone, based on engineering judgement	36
Nickel	7440020		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	11-81 lb/10E12 Btu	Controlled with ESP, based on engineering judgement	36
Nickel	7440020		Coal combustion	Anthracite coal-fired cyclone boilers, util/commerc/industr	1	1350-2240 lb/10E12 Btu	Controlled with scrubber, based on engineering judgement	36
Nickel	7440020		Coal combustion	Anthracite coal-fired stoker boilers, util/commerc/industr	1	683-1140 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Nickel	7440020		Coal combustion	Anthracite coal-fired stoker boilers, util/commerc/industr	1	367-610 lb/10E12 Btu	Controlled with multiclone, based on engineering judgement	36
Nickel	7440020		Coal combustion	Anthracite coal-fired stoker boilers, util/commerc/industr	1	0.07 lb Ni oxides/1000 gal lubric. oil	Controlled with ESP, based on engineering judgement	36
Nickel	7440020		Waste incineration	Lubricating oil	1	0.07 lb Ni oxides/1000 gal lubric. oil	Control status unclear, based on source tests	144
Nickel	7440020	1499	Asbestos milling	Milling dusts	305032	0.000018 lb/ton total asbestos produced	Controlled by fabric filter, based on analysis of one mill	110
Nickel	7440020	226	Woven fabric finishing	Tenter frames - resin finishing	330001	0.41 mg/kg fabric	Uncontrolled, average of four tests	52
Nickel	7440020	226	Woven fabric finishing	Thermosol dyeing	330001	0.091 mg/kg fabric	Uncontrolled, average of two tests	52
Nickel	7440020	226	Woven fabric finishing	Heat setting	330001	0.0062 mg/kg fabric	Uncontrolled, based on test data	52
Nickel	7440020	3241	Cement manufacture - dry process	feed to initial grinding mill	305006	0.01 lb/1000 tons raw mater. feed input	Controlled by fabric filter, based on source tests	110
Nickel	7440020	3241	Cement manufacture - dry process	Air separator after initial grinding mill	305006	0.001 lb/1000 tons raw mater. feed input	Controlled by fabric filter, based on source tests	110
Nickel	7440020	3241	Cement manufacture - dry process	feed to finish grinding mill	305006	0.01 lb/1000 tons raw mater. feed input	Controlled by fabric filter, based on source tests	110
Nickel	7440020	3241	Cement manufacture - dry process	Air separator after finish grinding mill	305006	0.006 lb/1000 tons raw mater. feed input	Controlled by fabric filter, based on source tests	110

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Nickel	7440020	3241	Cement manufacture - dry process	Kiln	30500606	0.3 lb/1000 tons raw mater. feed input	Controlled by fabric filter, based on source tests	110
Nickel	7440020	3241	Cement manufacture - dry process	Raw material grinding mills	30500613	0.0006 lb/1000 ton raw mater. feed input	Controlled by fabric filter, based on source tests	110
Nickel	7440020	3241	Cement manufacture - wet process	Kiln	30500706	0.2-2 lb/1000 tons raw mater. feed input	Controlled by fabric filter, based on source tests	110
Nickel	7440020	3241	Cement manufacture - wet process	Clinker cooler	30500714	0.004 lb/1000 tons raw mater. feed input	Controlled by fabric filter, based on source tests	110
Nickel	7440020	3241	Cement manufacture - wet process	Clinker cooler	30500714	0.1 lb/1000 tons raw mater. feed input	Controlled by ESP, based on source tests	110
Nickel	7440020	3241	Cement manufacture - wet process	Clinker cooler	30500714	0.2 lb/1000 tons raw mater. feed input	Controlled by two fabric filters in parallel, based on source tests	110
Nickel	7440020	3241	Cement manufacture - wet process	finishing grinding mill after air separator	30500717	0.004 lb/1000 tons raw mater. feed input	Controlled by fabric filter, based on source tests	110
Nickel	7440020	3312	Metallurgical coke production	Coke ovens	303003	0.0016 lb/ton of coal processed	Uncontrolled, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Open hearth fugitive emissions	303009	0.0005 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Basic oxygen process fugitives	303009	0.0001 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Electric arc furnace fugitive emissions (carbon steel)	303009	0.00054 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Electric arc furnace fugitive emissions (carbon steel)	303009	0.00011 lb/ton of steel produced	Controlled with hoods and fabric filter, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Electric arc furnace fugitive emissions (alloy steel)	303009	0.0016 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Electric arc furnace fugitive emissions (alloy steel)	303009	0.00032 lb/ton of steel produced	Controlled with hoods and fabric filter, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Open hearth furnace	30300901	0.00018 lb/ton of steel produced	Controlled by ESP, calculated based on source tests	110

POLLUTANT	CAD NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Nickel	7440020	3312	Steel production	Electric arc furnace (alloy steel)	303009004	0.025 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Electric arc furnace (alloy steel)	303009004	0.00039-0.00025 lb/ton of steel produced	Controlled with fabric filter, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Electric arc furnace (carbon steel)	303009008	0.0083 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Electric arc furnace (carbon steel)	303009008	0.00015-0.00006 lb/ton of steel produced	Controlled by fabric filter, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Basic oxygen process furnace	303009115	0.00018 lb/ton of steel produced	Controlled by scrubber, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Basic oxygen process furnace	303009114	0.00018 lb/ton of steel produced	Controlled by scrubber, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Electric arc furnace (stainless steel)	303009908	0.3 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Electric arc furnace (stainless steel)	303009908	0.003 lb/ton of steel produced	Controlled with fabric filter, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Electric arc furnace fugitive emissions (stainless steel)	303009908	0.036 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Electric arc furnace fugitive emissions (stainless steel)	303009908	0.0072 lb/ton of steel produced	Controlled with hoods and fabric filter, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Argon oxygen decarburization vessel (stainless steel)	303009908	0.32 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110
Nickel	7440020	3312	Steel production	Argon oxygen decarburization vessel (stainless steel)	303009908	0.064 lb/ton of steel produced	Controlled with fabric filter, calculated based on source tests	110
Nickel	7440020	3339	Primary smelting of nickel ore	Rotary dryers	303	0.042-0.56 lb/ton of nickel produced	Controlled by cyclone/scrubber, based on source tests	110
Nickel	7440020	3339	Primary smelting of nickel ore	Crusher house	303	0.012-0.092 lb/ton of nickel produced	Controlled by fabric filter, based on source tests	110
Nickel	7440020	3339	Primary smelting of nickel ore	Wash bin	303	0.00045-0.0019 lb/ton of nickel produced	Controlled by fabric filter, based on source tests	110
Nickel	7440020	3339	Primary smelting of nickel ore	Calciners	303	0.46 lb/ton of nickel produced	Controlled by ESP, based on source tests	110

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Nickel	7440020	3339	Primary smelting of nickel ore	Skip hoists	303	0.027-0.067 lb/ton of nickel produced	Controlled by fabric filters, based on source tests	110
Nickel	7440020	3339	Primary smelting of nickel ore	Ore melter/roaster combination	303	0.054-0.092 lb/ton of nickel produced	Controlled by fabric filters, based on source tests	110
Nickel	7440020	3339	Primary smelting of nickel ore	Refining furnace	303	0.013 lb/ton of nickel produced	Controlled by fabric filters, based on engineering estimates	110
Nickel	7440020	3341	Nonferrous metals production	Melt furnace at nickel-copper or copper-nickel facility	304	2 lb/ton of nickel charged	Controlled by fabric filter, based on engineering judgement	110
Nickel	7440020	3341	Nonferrous metals production	Melt furnace at superalloy facility	304	2 lb/ton of nickel charged	Controlled by fabric filter, based on engineering judgement	110
Nickel	7440020	3341	Nonferrous metals production	Melt furnace at permanent magnet alloy facility	304	2 lb/ton of nickel charged	Controlled by fabric filter, based on engineering judgement	110
Nickel	7440020	3341	Nonferrous metals production	Melt furnace at electrical alloy facility	304	2 lb/ton of nickel charged	Controlled by fabric filter, based on engineering judgement	110
Nickel	7440020	3341	Nonferrous metals production	Melt furnace at other nonferrous alloy facility	304	2 lb/ton of nickel charged	Controlled by fabric filter, based on engineering judgement	110
Nickel	7440020	3341	Secondary processing of nickel-bearing scrap	Stainless steel scrap melting furnace	304010	10 lb/ton of nickel charged	Controlled, based on questionnaire survey results	110
Nickel	7440020	3341	Secondary processing of nickel-bearing scrap	Stainless steel scrap melting furnace	304010	0.6 lb/ton of steel produced	Controlled, based on questionnaire survey results	110
Nickel	7440020	3341	Secondary processing of nickel-bearing scrap	Nickel alloy steel scrap melting furnace	304010	10 lb/ton of nickel charged	Controlled, based on material balance	110
Nickel	7440020	3341	Secondary processing of nickel-bearing scrap	Iron and steel scrap melting furnace	304010	0.0015 lb/ton of iron and steel produced	Controlled, based on material balance	110
Nickel	7440020	3341	Secondary processing of nickel-bearing scrap	Other nickel alloy scrap melting furnace	304010	2 lb/ton of nickel charged	Controlled, based on engineering judgement	110
Nickel	7440020	3341	Secondary processing of nickel-bearing scrap	Copper base alloy scrap melting furnaces	304010	2 lb/ton of nickel charged	Controlled, based on engineering judgement	110
Nickel	7440020	3341	Secondary processing of nickel-bearing scrap	Electrical alloy scrap melting furnaces	304010	2 lb/ton of nickel charged	Controlled, based on engineering judgement	110
Nickel	7440020	3341	Secondary processing of nickel-bearing scrap	Cast iron scrap melting furnaces	304010	20 lb/ton of nickel charged	Uncontrolled, based on engineering judgement	110

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Nickel	7440020	3471	Electro-deposition	Entire process		0.000225 g/hr/amp	Value is for striking, can be used for plating, measured factor	92
Nickel	7440020	3691	Nickel-cadmium battery manufacture	Total plant emissions	304	8.8 lb/ton of nickel processed	Uncontrolled, based on industry responses to questionnaire survey	110
Nickel	7440020	4911	Electric utility industry	Fresh water cooling towers with drift loss range of 0.1 to 0.2%	1	16 pg/l heat input to power plant	Uncontrolled, based on source tests	110
Nickel	7440020	4911	Electric utility industry	Fresh water cooling towers with drift loss range of 0.002 to 0.005%	1	0.34 pg/l heat input to power plant	Uncontrolled, based on source tests	110
Nickel	7440020	4953	Municipal waste combustion	Incinerator burning refuse only	501001	0.003 lb/ton of solid waste incinerated	Controlled by wet scrubber, calculated based on source tests	110
Nickel	7440020	4953	Municipal waste combustion	Incinerator burning refuse and sludge	501001	0.005 lb/ton of solid waste incinerated	Controlled by wet scrubber, calculated based on source tests	110
Nickel	7440020	4953	Municipal waste combustion	Incinerator stack	501001	0.001 kg/Mg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, based on material balance for Model Incinerator	98
Nickel	7440020	4953	Sewage sludge incineration	Multiple hearth	50100506	0.003 lb/ton of solid waste incinerated	Controlled by wet scrubber, calculated based on source tests	110
Nickel	7440020	4953	Sewage sludge incineration	Fluidized bed	50100506	0.0003 lb/ton of solid waste incinerated	Controlled by wet scrubber, calculated based on source tests	110
Nickel	7440020	4953	Sewage sludge incineration	Multiple hearth	50100506	0.15 lb/ton of solid waste incinerated	Uncontrolled, calculated based on source tests	110
Nickel	7440020	4953	Sewage sludge incineration	Fluidized bed	50100506	0.15 lb/ton of solid waste incinerated	Uncontrolled, calculated based on source tests	110
Nickel	7440020	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	30 mg/kg dry sludge	Average of three tests, scrubber (range 4.1-78.06)	101
Nickel	7440020	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	1.6 mg/kg dry sludge	Average of 10 tests, scrubber	101
Nickel	7440020	806	Hospital waste incineration	Incinerator	315020	2.53 x 10E-4 lb/ton	Uncontrolled, test data	9
Nitrobenzene	98953	28	Use as a solvent	General	401	1.0 lb/lb used	Assume all is eventually lost to atmosphere	13
Nitrobenzene	98953	2865	Nitrobenzene and aniline	General	30119501	8.0 x 10E-6 lb/lb produced	Based on site visit data	13

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Nitrobenzene	98953	2865	Nitrobenzene and aniline production	Fugitive	30105506	3.1 x 10E-4 lb/lb produced	Based on site visit data	13
Nitrobenzene	98953	2865	Nitrobenzene and aniline production	Storage	407080	6.0 x 10E-6 lb/lb produced	Based on site visit data	13
Nitrobenzene	98953	2869	Dichloroaniline production	General	301	1.5 x 10E-3 lb/lb used	Based on engineering estimate	13
Nitrobenzene	98953	2869	Dinitrobenzene production	General	301	1.5 x 10E-3 lb/lb used	Based on engineering estimate	13
Nitrobenzene	98953	2869	Nitrobenzene use as a chemical intermediate	General	301	1.05 x 10E-3 lb/lb used	Based on engineering estimate	13
Nitrobenzene	98953	2869	Nitrobenzene use as a chemical intermediate	Fugitive	301	3.0 x 10E-6 lb/lb used	Based on engineering estimate	13
Nitrobenzene	98953	2869	Nitrobenzene use as a chemical intermediate	Storage	407080	1.5 x 10E-6 lb/lb used	Based on engineering estimate	13
Nitrobenzene	98953	4953	Wastewater treatment	POTW	50100701	0.02 Mg/Mg nitrobenzene in influent	Based on mla. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	60
Nitrophenol, 2-	88755	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	3821 ug/kg dry sludge	One test, scrubber	101
Nitrophenol, 2-	88755	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	466 ug/kg dry sludge	One test, scrubber	101
Nitrophenol, 4-	100027	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	4214 ug/kg dry sludge	One test, scrubber	101
Nitrophenol, 4-	100027	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	4356 ug/kg dry sludge	One test, scrubber	101
Octachlorodibenzo-p-dioxin		26	Kraft paper recovery boilers	Stack	307	0.49 - 1.4 ng/dscm @ 3% O2	Three locations tested	115
Octachlorodibenzo-p-dioxin		33	Secondary copper smelting	Stack	306	3700 ng/dscm @ 3% O2	Estimated value from stack test results	115
Octachlorodibenzo-p-dioxin		49	Industrial carbon regeneration	Stack		0.81 ng/dscm @ 3% O2	Tier 4 stack testing	115
Octachlorodibenzo-p-dioxin		49	Drum and barrel furnace	Stack	5	0.92 ng/dscm @ 3% O2	Tier 4 stack test sampling	115
Octachlorodibenzo-p-dioxin		49	Sewage sludge incineration	Stack	5	0.98 - 15 ng/dscm @ 3% O2	Three locations tested	115

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Octachlorodibenzo-p-dioxins		49	Wire reclamation incineration	Stack	5	290 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Octachlorodibenzo-p-dioxins		49	Wood combustion	Stack, industrial wood-fired boiler	5	11 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
Octachlorodibenzo-p-dioxins		806	Hospital waste incineration	Incinerator	315020	2.21 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Octachlorodibenzo-p-dioxins, total		4953	Municipal waste combustion	Mass burn with waterwall	5	3.39 - 509 ng/m ³ @ 12% CO ₂	n = 10, 6 locations, controlled with an ESP	118
Octachlorodibenzo-p-dioxins, total		4953	Municipal waste combustion	Mass burn with waterwall	5	12.8 - 1930 ug/Mg feed	n = 6, 4 locations, controlled with an ESP	118
Octachlorodibenzofurans		26	Kraft paper recovery boilers	Stack	307	0.07 - 0.13 ng/dscm @ 3% O ₂	Three locations tested	115
Octachlorodibenzofurans		33	Secondary copper smelting	Stack	304	7200 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Octachlorodibenzofurans		49	Industrial carbon regeneration	Stack		0.54 ng/dscm @ 3% O ₂	Tier 4 stack testing	115
Octachlorodibenzofurans		49	Drum and barrel furnace	Stack	5	0.55 ng/dscm @ 3% O ₂	Tier 4 stack test sampling	115
Octachlorodibenzofurans		49	Sewage sludge incineration	Stack	5	0.07 - 45 ng/dscm @ 3% O ₂	Three locations tested	115
Octachlorodibenzofurans		49	Wire reclamation incineration	Stack	5	230 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Octachlorodibenzofurans		49	Wood combustion	Stack, industrial wood-fired boiler	5	0.92 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
Octachlorodibenzofurans		806	Hospital waste incineration	Incinerator	315020	2.28 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Octachlorodibenzofurans, total		4953	Municipal waste combustion	Mass burn with waterwall	5	0.706 - 197 ng/M ³ @ 12% CO ₂	n = 10, 6 locations, controlled with an ESP	118
Octachlorodibenzofurans, total		4953	Municipal waste combustion	Mass burn with waterwall	5	1.6 - 536 ug/Mg feed	n = 6, 4 locations, controlled with an ESP	118
PM			Natural gas combustion	Double shell boilers, home heating		0.48 pg/l heat input	Represents primarily particulate PM, uncontrolled	114
PM			Natural gas combustion	Hot air furnace, home heating		0.33 pg/l heat input	Represents primarily particulate PM, uncontrolled	114
PM			Natural gas combustion	Wall space heater, home		27.5 pg/l heat input	Represents primarily particulate	114

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
PM			Chain saw exhausts	heating		75 mg/m ³	PM, uncontrolled	116
PM			Chain saw exhausts	Chain saw		31 ug/m ³	Measured during laboratory tests	116
PM			Wood combustion, residential	Fluidized bed furnace, pine wood chips		151.8 mg/kg fuel burned	Average of range of values measured in field use (19-42 ug/m ³)	116
PM			Wood combustion, residential	Fluidized bed furnace, pine wood chips		303.7 mg/kg fuel burned	Baghouse, represents both gaseous and particulate PM, average of 2 values	116
PM			Wood combustion, residential	Fireplace		32.5 mg/kg fuel burned	Uncontrolled, represents both gaseous and particulate PM, average of 2 values	116
PM			Wood combustion, residential	Fireplace		0.019 mg/kg fuel burned	Uncontrolled, represents both gaseous and particulate PM, average of 3 values	116
PM			Wood combustion, residential	Baffled woodstove		211.8 mg/kg fuel burned	Uncontrolled, represents both gaseous and particulate emissions, average of 2 values	116
PM			Wood combustion, residential	Nonbaffled woodstove		196.1 mg/kg fuel burned	Uncontrolled, represents both gaseous and particulate PM, average of 4 values	116
PM			Wood combustion, residential	Nonbaffled catalytic woodstove		47.2 mg/kg fuel burned	Uncontrolled, represents both gaseous and particulate PM, but all were found in gaseous phase	116
PM			Wood combustion, residential	Nonbaffled woodstove with add-on catalytic combustor		201.7 mg/kg fuel burned	Uncontrolled, represents both gaseous and particulate PM, but all were found in gaseous phase	116
PM			Wood combustion, residential	Baffled catalytic woodstove		163.2 mg/kg fuel burned	Uncontrolled, represents both gaseous and particulate PM, but all were found in gaseous phase	116
PM			Wood combustion, residential	Woodstove with secondary combustion		74.7 mg/kg fuel burned	Uncontrolled, represents both gaseous and particulate PM, but all were found in gaseous phase	116
PM			Wood combustion, residential	Small airtight woodstoves,		20.9 mg/kg dry fuel burned	Normal high-temperature burning	57

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
PM			Wood combustion, residential	birch wood			conditions, based on emission tests	
PM			Wood combustion, residential	Small airtight woodstoves, birch wood		20.1 mg/kg dry fuel burned	Sterved air conditions, based on emission tests	57
PM			Wood combustion, residential	Small airtight woodstoves, spruce wood		2.6 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
PM			Wood combustion, residential	Small airtight woodstoves, spruce wood		32.3 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
PM			Oil combustion, utility	Wall-fired, residual oil	10100401	3.9 pg/J heat input	Uncontrolled, ave. of 4 values ranging from 0.45-12.3 pg/J, represents gaseous & particulate PM	114
PM			Oil combustion, utility	Face-fired, residual oil	10100401	0.37 pg/J heat input	Uncontrolled, represents both gaseous and particulate PM	114
PM			Oil combustion, utility	Tangential-fired, residual oil	10100406	2.5 pg/J heat input	Cyclone controls, represents both gaseous and particulate PM	114
PM			Coal combustion, industrial	Wet bottom, pulverized bituminous coal	10200201	2.8 pg/J	Cyclones/ESP, represents both gaseous and particulate PM	114
PM			Coal combustion, industrial	Dry bottom, horizontally-fired, pulverized bituminous coal	10200201	52.1 pg/J	ESP, represents both gaseous and particulate PM	114
PM			Coal combustion, industrial	Bituminous coal-fired pulverized dry bottom, water tube boilers	10200202	1.2 pg/J	Multicyclones, represents primarily particulate PM	114
PM			Coal combustion, industrial	Watertube, pulverized bituminous coal	10200202	29.3 pg/J	ESP, represents both gaseous and particulate PM	114
PM			Coal combustion, industrial	Spreader stoker	10200204	1.3 pg/J	Multicyclones, coal type not given, represents mostly particulate PM	114
PM			Coal combustion, industrial	Mass-fired overfeed stoker, bituminous coal	10200205	14.2 pg/J	Uncontrolled, represents both gaseous and particulate PM	114
PM			Coal combustion, industrial	Underfeed stoker	10200206	84.7 pg/J	Uncontrolled, coal type not given, represents mostly particulate PM	114
PM			Oil combustion, industrial	Steam atomized watertube, residual oil	10200401	2.3 pg/J heat input	Uncontrolled, represents mostly particulate PM	114

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
PM			Oil combustion, industrial	Watertube, residual oil	10200401	0.63 pg/J heat input	Uncontrolled, represents both gaseous and particulate PM	116
PM			Natural gas combustion	Firerube boiler, process heater	10200601	0.28 pg/J heat input	Represents primarily particulate PM, uncontrolled	116
PM			Natural gas combustion	Scotch marine, hospital heating	10200601	27.4 pg/J heat input	Represents primarily particulate PM, uncontrolled	116
PM			Wood combustion	Industrial/commercial spreader stoker, bark	10200901	0.016 pg/J heat input	Cyclones, represents both gaseous and particulate PM	116
PM			Wood combustion	Industrial/commercial hot water boiler, hardwood chips	10200901	1.9 mg/kg dry fuel burned	Multiclone, represents both gaseous and particulate PM	116
PM			Wood combustion	Industrial stick burner boiler, white oak and mixed logs, industr/commerc	10200903	78 mg/kg wood burned	Uncontrolled, ave. of 3 values ranging 65-87 mg/kg, represents both gaseous and particulate PM	116
PM			Wood combustion, industrial	Horizontal return tube boiler, green ash	10200903	2.3 mg/kg dry wood burned	Uncontrolled, represents both gaseous and particulate PM, average of 3 values (1.6-3.1)	116
PM			Wood combustion, industrial	Watertube, dry oak	10200903	2.2 mg/kg dry wood burned	Multiclone, represents both gaseous and particulate PM (average of 1.16, 3.32 mg/kg)	116
PM			Wood combustion, industrial	Watertube, green sawdust	10200903	0.83 mg/kg dry wood burned	Multiclone, represents both gaseous and particulate PM, average of 0.86, 0.79 mg/kg	116
PM			Wood combustion, industrial	Horizontal return tube, dry hardwood	10200903	0.07 mg/kg dry wood burned	Multicyclone, represents both gaseous and particulate PM, average of 0.12, 0.02 mg/kg	116
PM			Wood combustion, industrial	Unrfeed stoker, dry hardwood	10200903	3.03 mg/kg dry wood burned	Multicyclone, represents both gaseous and particulate PM, average of 2.28-3.47 mg/kg	116
PM			Wood combustion, industrial	Horizontal return tube, dry hardwood	10200903	0.7 mg/kg dry wood burned	Uncontrolled, represents both gaseous and particulate PM, average of 3, 0.22-0.96 mg/kg	116
PM			Wood combustion, industrial	Horizontal return tube, green pine/sawdust/bark	10200903	0.64 mg/kg dry wood burned	Uncontrolled, represents gaseous & particulate PM, ref. also lists 4.23 mg/kg for same boiler/fuel	116
PM			Wood combustion, industrial	Fluidized bed, green bark	10200903	1.15 mg/kg dry wood burned	Multicyclone, represents both	116

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
PM			Bagasse-fired industrial boilers	Boiler	10201101	43.1 pg/J heat input	gaseous and particulate PM, average of 3 (0.70-1.55 mg/kg)	116
PM			Coal combustion	Anthracite coal-fired magazine feed boiler, commercial/residential	103001	4.2 pg/J heat input	Average of 2 (17.2-68.9), multicyclones, represents both gaseous and particulate PM.	116
PM			Coal combustion	Anthracite coal-fired underfeed stoker, commercial/residential	10300102	9.6 pg/J heat input	Same ref. lists 21.3 pg/J for same boiler/coal type, represents both gaseous and particulate PM	116
PM			Coal combustion	Anthracite coal-fired hand-stoked boiler, commercial/residential	10300103	24.8 pg/J heat input	Same ref. also lists 68.4 pg/J for same boiler/coal type, represents both gaseous & particulate PM	116
PM			Coal combustion	Bituminous coal-fired magazine feed, commercial/residential	103002	1135 pg/J heat input	Represents both gaseous and particulate PM	116
PM			Coal combustion	Bituminous coal-fired underfeed stoker, commercial/residential	10300208	170 pg/J heat input	Same ref. also lists 3526 pg/J for same boiler/coal type, represents both gaseous & particulate PM	116
PM			Coal combustion	High-volatile bituminous coal-fired underfeed stoker, commercial/residential	10300208	2435 pg/J heat input	Same ref. also lists 1501 pg/J for same boiler/coal type, both represent particulate & gaseous PM	116
PM			Coal combustion	Low-volatile bituminous coal-fired underfeed stoker, commercial/residential	10300208	1743 pg/J heat input	Average of 6 values ranging from 363-576 pg/J, represents both gaseous and particulate PM	116
PM			Coal combustion	Bituminous coal-fired hand stoked boiler, commercial/industrial	10300214	1843 pg/J heat input	Represents both gaseous and particulate PM	116
PM			Coal combustion	Subbituminous coal-fired underfeed stoker, commercial/residential	10300224	671 pg/J heat input	Represents both gaseous and particulate PM	116
PM			Coal combustion	Processed lignite char underfeed stoker, commercial/residential	10300307	161 pg/J heat input	Average of 5 values ranging from 607-925 pg/J, represents both gaseous and particulate PM	116
PM			Oil combustion, commercial	Scotch marine boilers,	10300401	0.95 pg/J heat input	Represents both gaseous and particulate PM	116
							Uncontrolled, represents	116

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
PCN			Oil combustion	residual oil	10300501	<0.12 pg/J heat input	benzo(a)pyrene only	114
PCN			Oil combustion	Distillate wetertube boilers	10300501	17.7 pg/J	Uncontrolled	114
PCN			Oil combustion	Scotch marine boilers, distillate oil	10300501	<14.9 pg/J	Uncontrolled, home heating application	114
PCN			Oil combustion	Cast iron sectional boilers, distillate oil	10300501	<0.14 pg/J	Uncontrolled, same reference also lists <15.4 for same boiler/fuel type	114
PCN			Oil combustion	Hot air furnace, distillate oil	50300201	2.5 - 9.2 mg/kg waste	Based on concentration measured in smoke plume	114
PCN			Open burning	Grass, leaves, branches	50300201	10 - 22 mg/kg leaves	Based on lab tests	114
PCN			Open burning	Leaf burning	50300202	0.5 - 4.7 mg/kg waste	Based on concentration measured in smoke plume	114
PCN			Open burning	Municipal refuse open burning	50300203	240 mg/kg waste	Based on concentration measured in smoke plume	114
PCN			Open burning	Automobile tire burning	50300203	110 mg/kg waste	Based on concentration measured in smoke plume	114
PCN			Open burning	Automobile body burning	10201101	77.5 pg/J heat input	2 boilers each w/ multicyclone vented to 1 common stack. Represents both gaseous & particulate PCN	114
PCN	0133		Bagasse-fired industrial boilers	Boiler		13,982 ug/g TSP emitted	Lab tests of burning pine needles	114
PCN	0851		Controlled/prescribed burning	Backing fire, 0.5 kg/m ²		6254 ug/g TSP emitted	Lab tests of burning pine needles	114
PCN	0851		Controlled/prescribed burning	Backing fire, 1.5 kg/m ²		4084 ug/g TSP emitted	Lab tests of burning pine needles	114
PCN	0851		Controlled/prescribed burning	Backing fire, 2.4 kg/m ²		873 ug/g TSP emitted	Lab tests of burning pine needles	114
PCN	0851		Controlled/prescribed burning	Heading fire, 0.5 kg/m ²		399 ug/g TSP emitted	Lab tests of burning pine needles	114
PCN	0851		Controlled/prescribed burning	Heading fire, 1.5 kg/m ²		392 ug/g TSP emitted	Lab tests of burning pine needles	114
PCN	0851		Controlled/prescribed burning	Heading fire, 2.4 kg/m ²		3.3 g/hr	Based on offgas concentration and flow rate	114
PCN	1311		Oil shale retorting	Modified in situ retort				

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
PM		2861	Charcoal manufacture	Missouri-type batch kiln	30100603	3.5 g/Mg charcoal produced	Uncontrolled, average of 5 tests	116
PM		2895	Carbon black manufacture	Product recovery baghouse on main process vent	30100504	1900 mg/Mg carbon black produced	Uncontrolled, average of 3 tests, both gaseous and particulate PM	116
PM		2951	Hot mix asphalt production	Batch mix plant, rotary dryer and mixer	30500201	19.7 mg/Mg asphalt produced	Cyclone and wet scrubber, virgin feed material	116
PM		2951	Hot mix asphalt production	Drum mix plant	30500205	35.9 mg/Mg asphalt produced	Knock out box, using recycled feed	116
PM		2951	Hot mix asphalt production	Drum mix plant	30500205	16.9 mg/Mg asphalt produced	Knock out box and venturi scrubber, using recycled feed	116
PM		2951	Hot mix asphalt production	Drum mix plant	30500205	22.1 mg/Mg asphalt produced	Knock out box	116
PM		2951	Hot mix asphalt production	Drum mix plant	30500205	13.5 mg/Mg asphalt produced	Knock out box and venturi scrubber	116
PM		2952	Asphalt roofing material production	Asphalt blowing still	30500101	15.2 g/Mg asphalt blown	Uncontrolled	116
PM		2952	Asphalt roofing material production	Asphalt blowing still	30500101	0.048 g/Mg asphalt blown	Afterburner	116
PM		2952	Asphalt roofing material production	Asphalt blowing still	30500101	0.0021 g/Mg asphalt blown	Fume incinerator	116
PM		2952	Asphalt roofing material production	Asphalt blowing still	30500101	0.0058 g/Mg asphalt blown	Process heater furnace	116
PM		2952	Asphalt roofing material production	Asphalt blowing still	30500101	4.8 g/Mg asphalt blown	Stack baffles, represents particulate PM	116
PM		2952	Asphalt roofing material production	Saturator	30500103	0.21 g/Mg produced	Uncontrolled	116
PM		2952	Asphalt roofing material production	Saturator	30500103	0.096 g/Mg produced	ESP controlled	116
PM		2952	Asphalt roofing material production	Saturator	30500103	0.33 g/Mg produced	Uncontrolled	116
PM		2952	Asphalt roofing material production	Saturator and asphalt storage tanks	30500103	2.1 g/Mg produced	High velocity air filter	116
PM		330	ferroalloy production	Electric arc furnace, sealed, siliconmanganese	30300605	1.0 g/Mw-hr energy consumed by furnace	High pressure drop, wet scrubber represents gaseous and particulate PM	116

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
PM	3312	3312	Coking	Coke quenching	30300304	1.85 g/Mg coal charged	Clean water quench	114
PM	3312	3312	Coking	Coke quenching	30300304	613 g/Mg coal charged	Contaminated water used for quench	114
PM	3312	3312	Coking	Door leaks	30300308	5524 ng/Ma3	Uncontrolled, average of 4 test runs	114
PM	3312	3312	Coking	Door leaks	30300308	1256 ng/Ma3	Wet ESP	114
PM	3312	3312	Coking	Door leaks	30300308	0.00007 g/Mg coal charged	Wet ESP	114
PM	3312	3312	Coke by-product recovery	Tar processing - decanter	30300315	4.1 g/Mg coal fed to coking oven	Uncontrolled, represents both gaseous and particulate PM	114
PM	3312	3312	Coke by-product recovery	Tar processing - dewatering and storage	30300315	0.003 g/Mg coal fed to coking ovens	Uncontrolled, represents both gaseous and particulate PM	114
PM	3312	3312	Coke by-product recovery	Tar processing - distillation product storage	30300315	0.011 g/Mg coal fed to coking ovens	Uncontrolled, represents both gaseous and particulate PM	114
PM	3313	3313	Ferroalloy production	Electric arc furnace, sealed, ferromanganese	30300701	156 g/Mw-hr energy consumed by furnace	Uncontrolled, represents gaseous and particulate PM	114
PM	3313	3313	Ferroalloy production	Electric arc furnace, semi-sealed, ferrosilicon	30300702	91 g/Mw-hr energy consumed by furnace	Low energy wet scrubber, represents gaseous and particulate PM	114
PM	3334	3334	Primary aluminum smelting	Anode paste process - pitch melter	303001	2752 mg/m3	Uncontrolled	114
PM	3334	3334	Primary aluminum smelting	Anode paste process - mixer	303001	575 mg/m3	Uncontrolled	114
PM	3334	3334	Primary aluminum smelting	Anode paste process - triquatting	303001	9.2 ng/m3	Uncontrolled	114
PM	3334	3334	Primary aluminum smelting	Horizontal Soderberg pot room - pot gas scrubber	30300102	1.02 kg/metric ton Al		114
PM	3334	3334	Primary aluminum smelting	Vertical Soderberg pot room - pot gas dry scrubber	30300103	0.001 kg/metric ton Al		114
PM	3334	3334	Primary aluminum smelting	Vertical Soderberg pot room - scrubber for ventilation air	30300103	0.04 kg/metric ton Al		114
PM	3341	3341	Secondary lead smelting	Secondary smelter	30400403	1107 ng/Ma3	Controlled, device not specified, average of 4 tests, smelter processing batteries	114

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
POM		4911	Coal combustion, utility	Vertically fired boilers, pulverized subbituminous	10100201	2.80 pg/J heat input	ESP controlled, represents both particulate and gaseous POM	114
POM		4911	Coal combustion, utility	Front wall-fired boilers, pulverized bituminous coal	10100201	0.73 pg/J heat input	ESP, represents both gaseous and particulate POM	114
POM		4911	Coal combustion, utility	Bituminous coal-fired pulverized wet bottom boilers	10100201	8.0 pg/J	ESP, represents both gaseous and particulate POM	114
POM		4911	Coal combustion, utility	Bituminous coal-fired pulverized wet bottom boilers	10100201	24.3 pg/J	Wet scrubber, represents both gaseous and particulate POM	114
POM		4911	Coal combustion, utility	Bituminous coal-fired pulverized dry bottom boilers	10100202	3.68 pg/J	Wet scrubber, represents both gaseous and particulate POM	114
POM		4911	Coal combustion, utility	Bituminous coal-fired pulverized dry bottom boilers	10100202	8.0 pg/J	Multiclone/ESP, represents both gaseous and particulate POM	114
POM		4911	Coal combustion, utility	Vertically fired boilers, pulverized dry bottom, vertically fired boilers	10100202	0.32 - 4.2 pg/J	Uncontrolled, represents mostly particulate POM	114
POM		4911	Coal combustion, utility	Bituminous coal-fired cyclone utility boiler	10100202	0.30 - 0.70 pg/J heat input	Multiclone/ESP, represents mostly particulate POM	114
POM		4911	Coal combustion, utility	Bituminous coal-fired cyclone utility boiler	10100203	0.86 pg/J heat input	ESP, represents both gaseous and particulate POM	114
POM		4911	Coal combustion, utility	Stoker spreader, traveling grate	10100205	7.0 pg/J heat input	Wet scrubber, represents both particulate and gaseous POM	114
POM		4911	Coal combustion, utility	Pulverized dry bottom, tangentially fired boilers	10100212	0.95 pg/J heat input	Multiclone/ESP, represents mostly particulate POM	114
POM		4911	Coal combustion, utility	Tangentially-fired boilers, pulverized subbituminous	10100226	0.30 pg/J heat input	ESP controlled, represents both particulate and gaseous POM	114
POM		4911	Coal combustion, utility	Stoker spreader, lignite coal	10100306	6.3 pg/J	Multiclone, represents both gaseous and particulate POM	114
POM		4953	Municipal waste combustion	Multiple chamber, reciprocating grate	50100101	16.2 mg/Mg waste burned	Wet scrubber, represents particulate POM	114
POM		4953	Municipal waste combustion	Multiple chamber, reciprocating grate	50100101	4.4 mg/Mg waste burned	ESP, represents particulate POM	114

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
POM		4953	Municipal waste combustion	Multiple chamber, reciprocating grate	50100101	6300 mg/Mg waste burned	ESP, represents both gaseous and particulate POM	114
POM		4953	Municipal waste combustion	Rocking bar grate	50100101	18.2 mg/Mg waste burned	Jet scrubber and ESP, represents both gaseous and particulate POM	114
POM		4953	Commercial solid waste incineration	Multiple chamber with auxiliary gas burner	50100101	22.014 mg/Mg waste burned	Uncontrolled, represents particulate POM	114
POM		4953	Municipal waste combustion	Multiple chamber, traveling grate incinerator	50100101	40.4 mg/Mg waste burned	Settling chamber is control device, represents primarily particulate POM	114
POM		4953	Municipal waste combustion	Multiple chamber reciprocating stoker grate incinerator	50100101	312.9 mg/Mg waste burned	Uncontrolled, represents primarily particulate POM	114
POM		4953	Commercial solid waste incineration	Single chamber	50100102	2086 mg/Mg waste burned	Uncontrolled, represents particulate POM	114
POM		4953	Wastewater treatment	POTW	50100701	0.00-0.999 Mg/Mg of POM in influent	Depends on comp., based on emis. model, for hypoth. POTW, repr. ave. POTW treat. indus. wastewater	60, 61
POM		5032	Asphalt distribution/use	Entire process		0.0008 lb/ton asphalt applied	POM assumed to be 0.1% of TNC	92
Pentachlorodibenzop-diox In, 1,2,3,7,8-	40321764	4953	Municipal waste combustion	Mass burn with waterwall	5	0.19 - 3.8 ng/dscm @ 12% O ₂	n = 6, 4 locations, controlled with an ESP	118
Pentachlorodibenzop-diox In		26	Kraft paper recovery boilers	Stack	307	Not detectable - 0.15 ng/dscm @ 3% O ₂	Three locations tested, detection limit <0.1 ng/dscm @ 3% O ₂	115
Pentachlorodibenzop-diox In		49	Industrial carbon regeneration	Stack		0.44 ng/dscm @ 3% O ₂	Tier 4 stack testing	115
Pentachlorodibenzop-diox In		49	Drum and barrel furnace	Stack	5	0.72 ng/dscm @ 3% O ₂	Tier 4 stack test sampling	115
Pentachlorodibenzop-diox In		49	Sewage sludge incineration	Stack	5	Not detectable - 1.1 ng/dscm @ 3% O ₂	Three locations tested, detection limit <0.1 ng/dscm @ 3% O ₂	115
Pentachlorodibenzop-diox In		49	Wire reclamation incineration	Stack	5	2.2 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Pentachlorodibenzop-diox In		49	Wood combustion	Stack, industrial wood-fired boiler	5	48 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Pentachlorodibenzo-p-dioxin		4953	Municipal waste combustion	Mass burn	5	1.1 - 11,000 ng/Mw3 @ 12% CO2	Developed from test data, w/ various controls - ESP or water spray humidifier/dry sorbent injection	117
Pentachlorodibenzo-p-dioxin		4953	Municipal waste combustion	Modular	5	63 - 1540 ng/Mw3 @ 12% CO2	Developed from test data, all uncontrolled	117
Pentachlorodibenzo-p-dioxin		4953	Municipal waste combustion	BoF-fired	5	54 - 2480 ng/Mw3 @ 12% CO2	Developed from test data, most ESP controlled, one with ESP/cyclone	117
Pentachlorodibenzo-p-dioxin		806	Hospital waste incineration	Incinerator	315020	2.2 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Pentachlorodibenzo-p-dioxin, total		4953	Municipal waste combustion	Mass burn with waterwall	5	2.99 - 2700 ng/Mw3 @ 12% CO2	n = 9, 4 locations, controlled with an ESP	118
Pentachlorodibenzo-p-dioxin, total		4953	Municipal waste combustion	Mass burn with waterwall	5	11.7 - 6800 ug/Mg feed	n = 5, 3 locations, controlled with an ESP	118
Pentachlorodibenzo-p-dioxin, 1,2,3,7,8-		4953	Municipal waste combustion	Mass burn with waterwall	5	0.56 - 11 ng/Mw3 @ 12% CO2	n = 6, 4 locations, controlled with an ESP	118
Pentachlorodibenzo-p-dioxin, 2,3,4,7,8-	57117314	4953	Municipal waste combustion	Mass burn with waterwall	5	1.14 - 10.4 ng/Mw3 @ 12% CO2	n = 6, 4 locations, controlled with an ESP	118
Pentachlorodibenzo-p-dioxin		26	Kraft paper recovery boilers	Stack	307	Not detectable - 0.46 ng/dscm @ 3% O2	Three locations tested, detection limit <0.1 ng/dscm @ 3% O2	115
Pentachlorodibenzo-p-dioxin		33	Secondary copper smelting	Stack	304	19,000 ng/dscm @ 3% O2	Estimated value from stack test results	115
Pentachlorodibenzo-p-dioxin		49	Industrial carbon regeneration	Stack		0.37 ng/dscm @ 3% O2	Tier 4 stack testing	115
Pentachlorodibenzo-p-dioxin		49	Drum and barrel furnace	Stack	5	6.2 ng/dscm @ 3% O2	Tier 4 stack test sampling	115
Pentachlorodibenzo-p-dioxin		49	Sewage sludge incineration	Stack	5	4.8 - 110 ng/dscm @ 3% O2	Three locations tested, does not include 2,3,7,8-isomer	115
Pentachlorodibenzo-p-dioxin		49	Wire reclamation incineration	Stack	5	22 ng/dscm @ 3% O2	Estimated value from stack test results	115
Pentachlorodibenzo-p-dioxin		49	Wood combustion	Stack, industrial wood-fired boiler	5	23 ng/dscm @ 3% O2	Salt-laden wood, Tier 4 stack testing	115
Pentachlorodibenzo-p-dioxin		4953	Municipal waste combustion	Mass burn	5	0.423 - 15,000 ng/Mw3 @ 12% CO2	Developed from test data, w/ various controls - ESP or water spray humidifier/dry sorbent	117

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Pentachlorodibenzofurans		4953	Municipal waste combustion	Modular	5	97 - 1810 ng/m ³ @ 12% CO ₂	Injection	117
Pentachlorodibenzofurans		4953	Municipal waste combustion	RF-fired	5	135 - 9100 ng/m ³ @ 12% CO ₂	Developed from test data, all uncontrolled	117
Pentachlorodibenzofurans		806	Hospital waste incineration	Incinerator	315020	0.41 x 10 ⁻⁶ lb/ton feed	Uncontrolled, test data	9
Pentachlorodibenzofurans, total		4953	Municipal waste combustion	Mass burn with waterwall	5	33.2 - 5770 ng/m ³ @ 12% CO ₂	n = 9, 5 locations, controlled with an ESP	118
Pentachlorodibenzofurans, total		4953	Municipal waste combustion	Mass burn with waterwall	5	13.1 - 28,100 ug/Mg feed	n = 5, 3 locations, controlled with an ESP	118
Pentachlorophenol	87865	2491	Wood preserving	Thermal (pan) evaporation of pentachlorophenol wastewater		10,000 mg/m ³ gas vented	Average value	6
Pentachlorophenol	87865	2491	Wood preserving	Thermal (pan) evaporation of creosote wastewater		2 mg/m ³ gas vented	Average value	6
Pentachlorophenol	87865	2491	Wood preserving	Incineration of waste	307005	Not detectable	Controlled with baghouse	6
Pentachlorophenol	87865	2491	Wood preserving	Penta treating cylinder fugitives	307005	3.6 mg/m ³ gas leaked	Average of 3 measurements	6
Pentachlorophenol	87865	2491	Wood preserving	Creosote treating cylinder fugitives	307005	0.63 mg/m ³ gas leaked	One measurement	6
Pentachlorophenol	87865	2491	Log-treating	Creosote cool-down	307005	0.0012 lbs/hr	Based on one sampling program at one facility	10
Pentachlorophenol	87865	2491	Log-treating	Creosote conditioning	30700501	0.0009 lbs/hr	Based on one sampling program at one facility	10
Pentachlorophenol	87865	2491	Log-treating	Pentachlorophenol conditioning	30700597	0.0011 lbs/hr	Based on one sampling program at one facility	10
Pentachlorophenol	87865	2491	Log-treating	Pentachlorophenol cool-down	30700597	0.0009 lbs/hr	Based on one sampling program at one facility	10
Pentachlorophenol	87865	2491	Log-treating	Pentachlorophenol treating - fugitive	30700597	0.72 lbs/hr	Based on one sampling program at one facility	10
Pentachlorophenol	87865	2879	Manufacture of pentachlorophenol	General emissions	301033	5.5 x 10 ⁻⁴ lb/lb active ingredient	Control unknown, based on industry estimates	16

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Pentachloroethene	87665	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	<90 ug/kg dry sludge	One test, scrubber	101
Pentachloroethene	87665	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<150 ug/kg dry sludge	One test, scrubber	101
Pentachloroethene	87665	4953	Wastewater treatment	POTW	50100701	0.003 kg/Mg pentachloroethene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Perchloroethylene	127184		Storage and handling	Entire process		2.3 lb/1000 gal perchloroethylene	Control status and basis uncertain	2
Perchloroethylene	127184		Aerosol packaging	Entire process		3.7 kg/Mg of PCE consumed	Uncontrolled, based on aggregate est. of emis. & consumption for 5 facilities' questionnaires	74, 75
Perchloroethylene	127184		Use of aerosol products	Entire process		1 kg/kg of PCE in product applied	Uncontrolled, based on engineering judgement	68
Perchloroethylene	127184		Waste oil combustion	Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	0.036 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, assumes 97% OAE	55
Perchloroethylene	127184		Degreasing operations using PCE	Open top vapor degreasers	40100203	0.93 kg/kg of fresh (virgin) PCE used	Uncontrolled, based on material balance	76
Perchloroethylene	127184		Degreasing operations using PCE	Open top vapor degreasers	40100203	0.89 kg/kg of fresh (virgin) PCE used	Controlled by refrigerated freeboard chiller, based on material balance	76
Perchloroethylene	127184		Degreasing operations using PCE	Conveyorized vapor degreaser	40100223	0.96 kg/kg of fresh (virgin) PCE used	Uncontrolled, based on material balance	76
Perchloroethylene	127184		Degreasing operations using PCE	Conveyorized vapor degreaser	40100223	0.91 kg/kg of fresh (virgin) PCE used	Controlled by carbon adsorber or refrigerated freeboard chiller, based on material balance	76
Perchloroethylene	127184		Degreasing operations using PCE	Cold cleaners	40100304	0.78 kg/kg of fresh (virgin) PCE used	Uncontrolled, based on material balance	76
Perchloroethylene	127184		Degreasing operations using PCE	Cold cleaners	40100304	0.76 kg/kg of fresh (virgin) PCE used	Controlled by 0.7 freeboard ration & drainage rack w/ 15 sec. drain time, based on material balance	76
Perchloroethylene	127184		Application of paints and coatings	Entire process	402	1 kg/kg of PCE in paint or coating appl.	Uncontrolled, based on engineering judgement	68
Perchloroethylene	127184		Application of adhesives	Entire process	40200701	1 kg/kg of PCE in adhesive	Uncontrolled, based on engineering judgement	68

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Perchloroethylene	127184	2869	Perchloroethylene and trichloroethylene production	Oxychlorination process, drying column vent	301125	applied 0.0075 g/kg of PCE and TCE produced	Judgement Factor includes TCE emissions, uncontrolled, based on data from one producer	70
Perchloroethylene	127184	2869	Perchloroethylene and trichloroethylene production	Oxychlorination process, distillation vent	301125	0.075 g/kg of PCE and TCE produced	Uncontrolled, based on data from one producer	70
Perchloroethylene	127184	2869	Perchloroethylene production	Chlorination of ethylene dichloride proc/neutralization & drying area vent	30112520	0.50 g/kg of PCE produced	Uncontrolled, based on data from one producer	70
Perchloroethylene	127184	2869	Perchloroethylene production	Chlorination of ethylene dichloride proc/distillation vent	30112521	0.099 g/kg of PCE produced	Uncontrolled, based on data from one producer	70
Perchloroethylene	127184	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	0.05 mg/kg dry sludge	One test, scrubber	101
Perchloroethylene	127184	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	7.8 mg/kg dry sludge	One test, scrubber	101
Perchloroethylene	127184	4953	Wastewater treatment	POTW	50100701	0.70 Mg/Mg perchloroethylene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Perchloroethylene	127184	5169	Chemical distribution facilities	Storage emissions	4	0.2 kg/Mg PCE distributed	Assumes storage tanks uncontrolled, based on nationwide emis. & distrib. est. for dist. fac. in 1983	68
Perchloroethylene	127184	5169	Chemical distribution facilities	Handling emissions (filling losses)	4	0.1 kg/Mg PCE distributed	Assumes partially controlled, based on nationwide emis. & distrib. est. for dist. fac. in 1983	68
Perchloroethylene	127184	721	Dry cleaning, perchloroethylene	Process emissions, transfer or dry-to-dry machine	40100101	5.26 kg/100 kg clothes cleaned	Uncontrolled, based on material balance, applies to coin-operated, commercial, & industrial sectors	156
Perchloroethylene	127184	721	Dry cleaning, perchloroethylene	Process emissions, transfer or dry-to-dry machine	40100101	1.58 kg/100 kg clothes cleaned	Control. by refrig. condenser, material balance, applies to coin-oper./commer./& indust. sectors	156
Perchloroethylene	127184	721	Dry cleaning, perchloroethylene	Process emissions, transfer or dry-to-dry machine	40100101	0.26 kg/100 kg clothes cleaned	Control. by carbon adsorber, material balance, applies to	156

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Perchloroethylene	127184	721	Dry cleaning, perchloroethylene	Fugitive emissions, transfer machine	40100101	4.12 kg/100 kg clothes cleaned	coin-oper./commer./& indust. sectors	156
Perchloroethylene	127184	721	Dry cleaning, perchloroethylene	Fugitive emissions, dry-to-dry machine	40100101	2.06 kg/100 kg clothes cleaned	Uncontrolled, based on material balance, applies to coin-operated, commercial, & industrial sectors	156
Perchloroethylene	127184	7699	Tank truck cleaning	Entire process		0.474 lb/truck	Emission measurement	97
Perchloroethylene	127184	806	Hospital waste incineration	Incinerator	315020	0.000249 lb/ton feed	Uncontrolled, test data	9
Phenol	108952	2491	Wood preserving	Thermal (pan) evaporation of pentachlorophenol wastewater		200 mg/sm ³ gas vented	Average value	6
Phenol	108952	2491	Wood preserving	Thermal (pan) evaporation of creosote wastewater		30 mg/sm ³ gas vented	Average value	6
Phenol	108952	2491	Wood preserving	Incineration of waste	307005	3.0 ug/sm ³ stack gas	Controlled with baghouse, average value	6
Phenol	108952	2491	Wood preserving	Penta treating cylinder fugitives	307005	0.55 mg/sm ³ gas leaked	Average of 3 measurements	6
Phenol	108952	2491	Wood preserving	Creosote treating cylinder fugitives	307005	0.11 mg/sm ³ gas leaked	One measurement	6
Phenol	108952	2821	Phenolic resin production	Storage	301018	2.0 x 10E-5 lb/lb used	Engineering judgement	13
Phenol	108952	2821	Phenolic resin production	Fugitive	301018	1.3 x 10E-4 lb/lb used	Engineering judgement	13
Phenol	108952	2821	Phenolic resin production	General	30101805	3.5 x 10E-4 lb/lb used	Engineering judgement	13
Phenol	108952	2833	Salicylic acid production (aspirin)	General	301060	3.5 x 10E-4 lb/lb used	From engineering estimates	13
Phenol	108952	2833	Salicylic acid production (aspirin)	Fugitive	301060	1.4 x 10E-4 lb/lb used	From engineering estimates	13
Phenol	108952	2833	Salicylic acid production (aspirin)	Storage	30106010	1.0 x 10E-5 lb/lb used	From engineering estimates	13
Phenol	108952	2865	Phenol production	General	30120201	1.78 x 10E-3 lb/lb produced	Engineering estimates	13
Phenol	108952	2865	Phenol production	Fugitive	30120280	4.1 x 10E-4 lb/lb produced	Engineering estimates	13

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Phenol	108952	2865	Phenol production	Storage	407084	3.0 x 10E-5 lb/lb produced	Engineering estimates	13
Phenol	108952	2869	Nonylphenol production	General	301	8.0 x 10E-4 lb/lb used	From engineering estimates	13
Phenol	108952	2869	Nonylphenol production	Fugitive	301	1.9 x 10E-4 lb/lb used	From engineering estimates	13
Phenol	108952	2869	Dodecylphenol production	General	301	8.0 x 10E-4 lb/lb used	Engineering judgement	13
Phenol	108952	2869	Dodecylphenol production	Fugitive	301	1.9 x 10E-4 lb/lb used	Engineering judgement	13
Phenol	108952	2869	Adipic acid production	General	30100101	1.3 x 10E-3 lb/lb used	Data from site visit	13
Phenol	108952	2869	Adipic acid production	Storage	30100106	1.0 x 10E-5 lb/lb used	Data from site visit	13
Phenol	108952	2869	Adipic acid production	Fugitive	30100180	1.3 x 10E-4 lb/lb used	Data from site visit	13
Phenol	108952	2869	Manufacture of acetone and phenol from cumene	Storage tank vents combined	30109151	0.051 g/kg phenol produced	Uncontrolled, average of a calculated value and an industry estimate	15
Phenol	108952	2869	Manufacture of acetone and phenol from cumene	Product transport loading vents, combined	30109151	0.11 g/kg phenol produced	Control unknown, average of two industry estimates	15
Phenol	108952	2869	Bisphenol A production	Storage	301152	3.0 x 10E-5 lb/lb used	From engineering estimates	13
Phenol	108952	2869	Bisphenol A production	Fugitive	301152	1.2 x 10E-4 lb/lb used	From engineering estimates	13
Phenol	108952	2869	Bisphenol A production	General	30115201	3.5 x 10E-4 lb/lb used	From engineering estimates	13
Phenol	108952	2869	Caprolactam production	General	30121001	1.3 x 10E-3 lb/lb used	Date from site visit	13
Phenol	108952	2869	Caprolactam production	Fugitive	30121080	1.3 x 10E-4 lb/lb used	Date from site visit	13
Phenol	108952	2869	Caprolactam production	Storage	407060	1.0 x 10E-5 lb/lb used	Date from site visit	13
Phenol	108952	2869	Nonylphenol production	Storage	407084	1.0 x 10E-5 lb/lb used	From engineering estimates	13
Phenol	108952	2869	Dodecylphenol production	Storage	407084	1.0 x 10E-5 lb/lb used	Engineering judgement	13
Phenol	108952	2879	Manufacture of pentachlorophenol	General emissions	301033	1.0x10E-3 lb phenol vapor/lb active ingr	Control unknown, based on industry estimates	16
Phenol	108952	3296	Rotary spin wool glass fiber production	Ductboard production	30501204	7.68 lb/ton finished product	Uncontrolled, may not represent all organics in exhaust stream	97
Phenol	108952	3296	Rotary spin wool glass fiber production	Heavy density product production	30501204	1.04 lb/ton finished product	Uncontrolled, may not represent all organics in exhaust stream	97

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Phenol	108952	3296	Rotary spin wool glass fiber production	R-19 product production	30501204	1.92 lb/ton finished product	Uncontrolled, may not represent all organics in exhaust stream	97
Phenol	108952	3296	Rotary spin wool glass fiber production	R-11 product production	30501204	1.84 lb/ton finished product	Uncontrolled, may not represent all organics in exhaust stream	97
Phenol	108952	3334	Primary aluminum production	Soderberg potline	303001	149 g/ton Al produced	Single test report, one plant, controlled, baghouse	91
Phenol	108952	3334	Primary aluminum production	Soderberg potline	303001	105 g/ton Al produced	Single test report, one plant, controlled, baghouse, material that escaped primary control system	91
Phenol	108952	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	34,542 ug/kg dry sludge	One test, scrubber	101
Phenol	108952	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<19 ug/kg dry sludge	One test, scrubber	101
Phenol	108952	4953	Wastewater treatment	POTW	50100701	0.0009 kg/kg phenol in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Phenol	108952	7699	Tank truck cleaning	Entire process		0.012 lb/truck	Emission measurement	97
Phenols			Wood combustion, residential	Woodstove or fireplace		2.0 lb/ton wood burned	Uncontrolled	94
Phosgene	75445	2821	Polycarbonate production	Process vents	30101899	6.6 lb/10E6 lb phosgene produced	Hypoth. site, value for polycarb. alone, add to value for phos. to get total for phos.-polyc. plant	121
Phosgene	75445	2821	Polycarbonate production	Fugitives	30101899	5.8 lb/10E6 lb phosgene produced	Hypothetical site, upper end of range, lower value is 0.15 lb/10E6 lb phosgene produced	121
Phosgene	75445	2821	Polycarbonate production	Process upset	30101899	0.0006 lb/ton phosgene		121
Phosgene	75445	2865	Methylene di-para-phenylene isocyanate (MDI) production	Process - general	301	6.6 x 10E-6 lb/lb produced	Derived from State air emission files	13
Phosgene	75445	2865	Toluene diisocyanate production	Process vent	30118101	0.75 lb/10E6 lb phosgene produced	Hypothetical site, value for MDI product., add value for phosgene to get total phosgene-MDI plant	121
Phosgene	75445	2865	Toluene diisocyanate production	Process upset	30118101	0.00025 lb/ton phosgene produced		121
Phosgene	75445	2865	Toluene diisocyanate production	Process - general	30118101	6.0 x 10E-6 lb/lb produced	Derived from State air emission	13

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Phosgene	75445	2865	production Toluene diisocyanate production	Fugitives	30118180	13.2 lb/1006 lb phosgene produced	files Hypothetical site, upper end of range, lower value is 0.3 lb/1006 lb	121
Phosgene	75445	2869	Phosgene production	Process vent		1.5 lb/1006 lb produced	Hypothetical site, incinerator and scrubber control, includes storage tanks	121
Phosgene	75445	2869	Phosgene production	Fugitive emissions		33 lb/1006 lb produced	Hypothetical site, upper end of range, lower value is 0.6 lb/1006 lb	121
Phosgene	75445	2869	Phosgene production	Process upsets		0.0005 lb/ton phosgene produced		121
Phosgene	75445	2869	Phosgene/diisocyanate production	Fugitive emissions	301	0.058 lb/hr operation	Based on measurements at a chemical plant	14
Phosgene	75445	2869	Production of phosgene	Fugitive	301	1.8 x 10E-4 lb/lb produced	Based on data from one site	13
Phosgene	75445	2879	Herbicide production	Process vents		6.6 lb/1006 lb phosgene produced	Hypothetical plant, value is for herbicide alone, add to phosgene to get value for phos-herbic. plant	121
Phosgene	75445	2879	Herbicide production	Fugitive		6 lb/1006 lb phosgene produced	Hypothetical plant, upper end of range, lower value is 0.15 lb/1006 lb	121
Phosgene	75445	2879	Herbicide production	Process upset		0.0006 lb/ton phosgene produced		121
Phosphorus	7723140		Wood combustion, residential	Woodstove without baffle		0.07 g/kg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Phosphorus	7723140	226	Woven fabric finishing	Tenter frames - resin finishing	330001	1.8 mg/kg fabric	Uncontrolled, average of four tests	52
Phosphorus	7723140	226	Woven fabric finishing	Thermosol dyeing	330001	0.17 mg/kg fabric	Uncontrolled, average of two tests	52
Phosphorus	7723140	226	Woven fabric finishing	Heat setting	330001	0.095 mg/kg fabric	Uncontrolled, based on test data	52
Phosphorus	7723140	226	Woven fabric finishing	Drying oven - resin finish	330001	0.39 mg/kg fabric	Uncontrolled, average of three tests	52
Phthalic anhydride	85449	2865	Phthalic anhydride production	Main process incinerator	301019	20.4 g/kg PA produced	Uncontrolled, test data and	120

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Phthalic anhydride	85449	2865	- naphthalene process Phthalic anhydride production - naphthalene process	Main process incinerator	301019	0.71 g/kg PA produced	engineering judgement Controlled, test data and engineering judgement	120
Phthalic anhydride	85449	2865	Phthalic anhydride production - naphthalene process	Secondary incinerator	301019	9.8 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Phthalic anhydride	85449	2865	Phthalic anhydride production - naphthalene process	Secondary incinerator	301019	0.10 g/kg PA produced	Controlled (not specified), test data and engineering judgement	120
Phthalic anhydride	85449	2865	Phthalic anhydride production - naphthalene process	Storage tanks	301019	0.37 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Phthalic anhydride	85449	2865	Phthalic anhydride production - naphthalene process	Storage tanks	301019	0.004 g/kg PA produced	Controlled, test data and engineering judgement	120
Phthalic anhydride	85449	2865	Phthalic anhydride production - naphthalene process	Flaker/bagger	301019	0.10 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Phthalic anhydride	85449	2865	Phthalic anhydride production - naphthalene process	Flaker/bagger	301019	0.001 g/kg PA produced	Controlled, test data and engineering judgement	120
Phthalic anhydride	85449	2865	Phthalic anhydride production - naphthalene process	Transport loading	301019	0.45 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Phthalic anhydride	85449	2865	Phthalic anhydride production - naphthalene process	Transport loading	301019	0.005 g/kg PA produced	Controlled, test data and engineering judgement	120
Phthalic anhydride	85449	2865	Phthalic anhydride production - xylene process	Flaker/bagger	301019	0.10 g/kg PA produced	Uncontrolled, based on test data and engineering judgement	120
Phthalic anhydride	85449	2865	Phthalic anhydride production - xylene process	Transport loading	301019	0.45 g/kg PA produced	Uncontrolled, based on test data and engineering judgement	120
Phthalic anhydride	85449	2865	Phthalic anhydride production - xylene process	Main process incinerator	301019	0.545 g/kg PA produced	Controlled, based on test data	120
Phthalic anhydride	85449	2865	Phthalic anhydride production - xylene process	Secondary incinerator	301019	0.106 g/kg PA produced	Controlled, test data and engineering judgement	120
Phthalic anhydride	85449	2865	Phthalic anhydride production - xylene process	Storage tanks	301019	0.003 g/kg PA produced	Controlled, test data and engineering judgement	120
Phthalic anhydride	85449	2865	Phthalic anhydride production - xylene process	Flaker/bagger	301019	0.001 g/kg PA produced	Controlled, test data and engineering judgement	120
Phthalic anhydride	85449	2865	Phthalic anhydride production	Transport loading	301019	0.005 g/kg PA produced	Controlled, test data and engineering judgement	120

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Phthalic anhydride	85449	2865	- xylene process Phthalic anhydride production - xylene process	Main process incinerator	301019	15.6 g/kg PA produced	engineering judgment Uncontrolled, based on test data and engineering judgment	120
Phthalic anhydride	85449	2865	Phthalic anhydride production - xylene process	Secondary incinerator	301019	10.6 g/kg PA produced	Uncontrolled, based on test data and engineering judgment	120
Phthalic anhydride	85449	2865	Phthalic anhydride production - xylene process	Storage tanks	301019	0.29 g/kg PA produced	Uncontrolled, based on test data and engineering judgment	120
Polychlorinated biphenyls	1336363		Waste oil combustion	Waste oil-fired boilers (<150 million Btu/hr) or space heaters	1	0.001 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgment, assumes 97% DNE	55
Polychlorinated biphenyls	1336363	4953	Municipal waste combustion	Existing mass burn heat recovery facility	501001	0.0021 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Polychlorinated biphenyls	1336363	4953	Municipal waste combustion	Projected or state-of-the-art mass burn heat recovery facility	501001	0.00021 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Polychlorinated biphenyls	1336363	4953	Municipal waste combustion	Mass burn northeast recovery facility	501001	0.0021 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Polychlorinated biphenyls	1336363	4953	Municipal waste combustion	Refuse-derived fuel facility	501001	1.4 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Polychlorinated biphenyls	1336363	4953	Municipal waste combustion	Modular fuel facility	501001	0.0045 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Polychlorinated biphenyls	1336363	4953	Municipal waste combustion	Existing mass burn heat recovery facility	501001	0.0001 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Polychlorinated biphenyls	1336363	4953	Municipal waste combustion	Projected or state-of-the-art mass burn heat recovery facility	501001	0.00001 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Polychlorinated biphenyls	1336363	4953	Municipal waste combustion	Mass burn northeast recovery facility	501001	0.0011 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Polychlorinated biphenyls	1336363	4953	Municipal waste combustion	Refuse-derived fuel facility	501001	0.09 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Polychlorinated biphenyls	1336363	4953	Municipal waste combustion	Modular facility	501001	0.0003 g/Mg of waste combusted	Controlled by dry alkaline	118

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Polychlorinated biphenyls	1346343	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	<340-408 ug/kg dry sludge	scrubber & fabric filter, assumes 95% control efficiency	101
Polychlorinated biphenyls	1346343	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<563-676 ug/kg dry sludge	One test, scrubber, range over seven different PCB	101
Polychlorinated dibenzo-p-dioxins			Mobile internal combustion sources	Automobile emissions		0.004 ng/g	One test, scrubber, range over seven different PCB	119
Polychlorinated dibenzo-p-dioxins			Mobile internal combustion sources	Automobile emissions		0.01 - 0.08 ng/g	Sample was a scraping from muffler of car using leaded gas, tetra, hept, octa homologues only	119
Polychlorinated dibenzo-p-dioxins			Mobile internal combustion sources	Automobile emissions			2 samples scraped from muffler, used unleaded gas w/ catalytic converter, tetra/hepta/hepta/octa homologues	119
Polychlorinated dibenzo-p-dioxins			Mobile internal combustion sources	Diesel truck emissions		0.39 - 0.40 ng/g	Samples of scrapings from 2 mufflers, diesel fuel used	119
Polychlorinated dibenzo-p-dioxins	3241		Coarse kilns coking waste	Stack - flue gas	305006	Not detectable	3 loc., liquid waste fuel contain. chlor. comp.; detect. limits range 1.6-4.9 ng/m ³ or 1 ng/ul in).	119
Polychlorinated dibenzo-p-dioxins	3276		Lime kilns coking wastes	Lime kiln	305016	Not detectable	One location, baghouse dust sample, fire petrol, coke + waste organics, detect. limit 0.005-0.25 ng/g	119
Polychlorinated dibenzo-p-dioxins	3276		Lime kilns coking wastes	Lime kiln - stack	305016	Not detectable	One location, stack part, sample, fire petrol, coke + waste organics, detect. limit 0.036-2.0 ng/m ³	119
Polychlorinated dibenzo-p-dioxins	49		Organics removal from wastewater - activated carbon	Regeneration of activated carbon using fluidized bed system - stack		1.58 ng/m ³	With afterburn., postchlorin. of wastewater relative to activated carbon bed, octa, hepta homologues only	119
Polychlorinated dibenzo-p-dioxins	49		Organics removal from wastewater - activated carbon	Regeneration of activated carbon using fluidized bed system - recuperator		Not detectable - 3.71 ng/m ³	With afterburn., postchlorin. of wastewater relative to activated carbon bed, detect. limit 0.006 ng/m ³	119
Polychlorinated dibenzo-p-dioxins	49		Organics removal from wastewater - activated carbon	Regeneration of activated carbon using fluidized bed system - afterburner		Not detectable - 1.4 ng/m ³	With afterburn., postchlorin. of wastewater relative to activated carbon bed, detect. limit 0.006 ng/m ³	119
Polychlorinated	49		Coal and refuse-derived fuel	Flue gas	1	Not detectable	One location, detection limit =	119

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
dibenzo-p-dioxins			combustion				0.25 ng/m ³	
Polychlorinated dibenzo-p-dioxins		49	Boiler - coking oil and waste oil with PCBs	Stack - flue gas	101	Not detectable	Waste oil = 10% total feed, one location, detection limit = 0.031 - 0.10 ug/m ³	119
Polychlorinated dibenzo-p-dioxins		49	Oil and coal combustion	Stack - particulate	102	68 ng/g	No penta homologue included, one location, TCOO detection = 20 ng/g	119
Polychlorinated dibenzo-p-dioxins		49	Boilers coking wastes - Industrial	Flue gas	102	Not detectable - 76.4 ng/m ³	Cofiring waste containing chlor. meter., at upper end of range, PCDOs found in feed for 1 of 3 loc.	119
Polychlorinated dibenzo-p-dioxins		49	Boilers coking wastes - Industrial	Fly ash	102	600 ng/g	One location, controls unknown	119
Polychlorinated dibenzo-p-dioxins		49	Hazardous waste incineration	Rotary kiln - particulate	503	9,710 - 847,400 ng/g	One location, n = 3, both solid & liquid waste, no supplementary fuel used	119
Polychlorinated dibenzo-p-dioxins		49	Hazardous waste incineration	Rotary kiln - particulate	503	13 - 1064 ng/g	1 location, n=4, both solid & liquid waste, use of suppl. fuel, hepta, hexa, octa homologues only	119
Polychlorinated dibenzo-p-dioxins		49	Hazardous waste incineration	Tar burner - particulate	503	256 - 372 ng/g	One location, n = 4, Use natural gas as suppl. fuel, hexa, hepta, octa homologues only	119
Polychlorinated dibenzo-p-dioxins		49	Hazardous waste incineration	Rotary kiln - flue gas	503007	Not detectable - 45.5 ng/m ³	Two locations	119
Polychlorinated dibenzo-p-dioxins		49	Hazardous waste incineration	Rotary kiln - flue gas	503007	75 ng/train	Penta, hepta, octa CDO only	119
Polychlorinated dibenzo-p-dioxins		49	Hazardous waste incineration	Bottom ash	503007	538 ng/g	Use of afterburner, fuel = transformer oil w/ PCBs + insul. from alum. & copper airings, 1 sample	119
Polychlorinated dibenzo-p-dioxins		4911	Coal combustion, utility	Utility boiler, flue gas	101	Not detectable	Four locations, 5-day composites, detection limits vary from 0.10 - 0.70 ng/g	119
Polychlorinated dibenzo-p-dioxins		4911	Coal combustion, utility	Coal-fired boiler, fly ash	101	Not detectable	Four locations, 5-day composites, detection limits vary from 0.10 - 0.70 ng/g	119
Polychlorinated dibenzo-p-dioxins		495	PCP-treated wood combustion	Incinerator	5	1520 ng/m ³	Flue gas sample	119

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
dibenzo-p-dioxins		495	PCP-treated wood combustion	Fluidized bed system	5	324 ng/g	Fly ash sample	119
Polychlorinated dibenzo-p-dioxins		495	PCP-treated wood combustion	Fluidized bed system	5	324 ng/g	Fly ash sample	119
Polychlorinated dibenzo-p-dioxins		495	Sewage sludge incineration	Multiple hearth - flue gas	5	483 - 1140 ng/m3	Controlled with a water scrubber, total of three samples	119
Polychlorinated dibenzo-p-dioxins		495	PCP-treated wood combustion	Incinerator	501	111,540 - 392,000 ng/g feed	Based on pilot-scale incineration, stack and smoke gas samples combined, n = 5	119
Polychlorinated dibenzo-p-dioxins		806	Hospital waste incineration	Flue gas	5	15 ng/m3	Flue gas sample, n = 3	119
Polychlorinated dibenzo-p-dioxins		806	Hospital waste incineration	Flue gas	502005	15 - 84 ng/m3	Based on testing at four locations in the U.S. and Canada	119
Polychlorinated dibenzo-p-dioxins, total		806	Hospital waste incineration	Incinerator	315020	11.71 ± 10E-6 lb/ton feed	Uncontrolled, test data	9
Polychlorinated dibenzofurans		3241	Cement kiln cofiring waste	Stack - flue gas	305006	Not detectable - 2.09 ng/m3	3 loc., liquid waste fuel contain. chlor. comp., detect. limits range 1.6-4.9 ng/m3 or 1 ng/ut in).	119
Polychlorinated dibenzofurans		3274	Lime kiln cofiring wastes	Lime kiln	305016	Not detectable	One location, baghouse dust sample, fire petrol, coke + waste organics, detect. limit 0.005-0.25 ng/g	119
Polychlorinated dibenzofurans		3274	Lime kiln cofiring wastes	Lime kiln - stack	305016	Not detectable	One location, stack part. sample, fire petrol, coke + waste organics, detect. limit 0.034-2.0 ng/m3	119
Polychlorinated dibenzofurans		49	Organics removal from wastewater - activated carbon	Regeneration of activated carbon using fluidized bed system - recuperator		0.015 - 4.76 ng/m3	With afterburn., postchlorin. of wastewater relative to activated carbon bed, detect. limit 0.006 ng/m3	119
Polychlorinated dibenzofurans		49	Organics removal from wastewater - activated carbon	Regeneration of activated carbon using fluidized bed system - afterburner		0.19 - 0.39 ng/m3	With afterburn., postchlorin. of wastewater relative to activated carbon bed, detect. limit 0.006 ng/m3	119
Polychlorinated dibenzofurans		49	Coal and refuse-derived fuel combustion	Flue gas	1	Not detectable	One location, detection limit = 0.25 ng/m3	119
Polychlorinated dibenzofurans		49	Boiler - cofiring oil and waste oil with PCBs	Stack - flue gas	101	Not detectable	Waste oil = 10% total feed, one location, detection limit = 0.031	119

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Polychlorinated dibenzofurans		49	Boilers cofiring wastes - Industrial	Flue gas	102	0.15 - 5.5 ng/m3	- 0.10 ug/m3 Cofiring waste containing chlorinated materials, four locations	119
Polychlorinated dibenzofurans		49	Boilers cofiring wastes - Industrial	Fly ash	102	300 ng/g	One location, controls unknown	119
Polychlorinated dibenzofurans		49	Hazardous waste incineration	Rotary kiln - flue gas	503007	Not detectable - 20.3 ng/m3	One location	119
Polychlorinated dibenzofurans		49	Hazardous waste incineration	Rotary kiln - flue gas	503007	19 ng/train	Penta homolog only	119
Polychlorinated dibenzofurans		49	Hazardous waste incineration	Bottom ash	503007	2853 ng/g	Use of afterburner, fuel = transformer oil w/ PCBs + insul. from alum. & copper wirings, 1 sample	119
Polychlorinated dibenzofurans		4911	Coal combustion, utility	Coal-fired boiler, fly ash	101	Not detectable	Four locations, 5-day composites, detection limits vary from 0.10 - 0.70 ng/g	119
Polychlorinated dibenzofurans		4911	Coal combustion, utility	Coal-fired boiler, flue gas	101	Not detectable	Four locations, 5-day composites, detection limits vary from 0.10 - 0.70 ng/g	119
Polychlorinated dibenzofurans		495	PCP-treated wood combustion	Incinerator	5	587 ng/m3	Flue gas sample	119
Polychlorinated dibenzofurans		495	PCP-treated wood combustion	Fluidized bed system	5	261 ng/g	Fly ash sample	119
Polychlorinated dibenzofurans		495	Sewage sludge incineration	Multiple hearth - flue gas	5	501 - 2268 ng/m3	Controlled with a water scrubber, total of three samples	119
Polychlorinated dibenzofurans		495	PCP-treated wood combustion	Incinerator	502	111,540 - 392,100 ng/g feed	Based on pilot-scale incineration, stack and smoke gas samples combined, n = 5	119
Polychlorinated dibenzofurans		806	Hospital waste incineration	Flue gas	5	25 ng/m3	Flue gas sample, n = 3	119
Polychlorinated dibenzofurans		806	Hospital waste incineration	Flue gas	502005	25 - 197 ng/m3	Based on testing at four locations in the U.S. and Canada	119
Polychlorinated dibenzofurans		806	Hospital waste incineration	Incinerator	315020	5.3 x 10E-6 lb/ton feed	Uncontrolled, test data	9

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SOC	EMISSION FACTOR	NOTES	REFERENCE
dioxinofurans, total		49	hazardous waste incineration	Stack - fly ash	5	17.5 - 113,710 ng/g	3 sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
polychlorinated dioxins, total		49	industrial waste incineration	Stack - fly ash	503	710 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
polychlorinated dioxins, total		4953	municipal waste combustion	ESP catch - fly ash	5	Not detectable - 2096 ng/g	Appr. 60 sites tested, homologue data given in refer., isomer data may be avail. from indiv. refer.	116
polychlorinated dioxins, total		4953	municipal waste combustion	Stack - fly ash	5	1540 ng/m3	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
polychlorinated dioxins, total		4953	municipal waste combustion	Stack - fly ash	5	220 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
polychlorinated dioxins, total		4953	municipal waste combustion	Flue gas from stack - fly ash	5	45.4 - 906 ng/m3	Four sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
polychlorinated furans, total		49	industrial waste incineration	Stack - fly ash	503	320 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
polychlorinated furans, total		4953	municipal waste combustion	ESP catch - fly ash	5	Not detectable - 2036 ng/g	Appr. 60 sites tested, homologue data given in refer., isomer data may be avail. from indiv. refer.	116
polychlorinated furans, total		4953	municipal waste combustion	Stack - fly ash	5	1322 ng/m3	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
polychlorinated furans, total		4953	municipal waste combustion	Stack - fly ash	5	85 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
polychlorinated furans, total		4953	municipal waste combustion	Flue gas from stack - fly ash	5	440.1 - 1212 ng/m3	Four sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Propadiene	463490	2869	Acetic anhydride production	Reaction by-product gas	3011302	1.9 g/kg acetic acid produced	Based on data from three plants	152

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCL	EMISSION FACTOR	NOTES	REFERENCE
Propene	74986	2869	Acrylonitrile production - SOHIO process	Absorber vent	30125406	60.7 g/kg acrylonitrile produced	Uncontrolled, based on data from plants and EPA studies	149
Propene	74986	2895	Carbon black manufacture - oil furnace	Main process vent	30100504	0.46 lb/ton carbon black produced	Based on test data	97
Propanol	71238	2865	Acetone/phenol manufacture from cumene	Cumene peroxidation vent	30102002	0.011 g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Propionaldehyde	123386		Wood combustion, residential	Woodstove		0.15 g/kg wood	Uncontrolled, average emission factor based on source tests	58
Propylene	115071	2821	Polyvinyl chloride production	Suspension process, entire plant	301018	7 x 10E-5 g propylene/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138
Propylene	115071	2865	Cumene production	Entire process	30115601	1.7 x 10E-4 kg/kg cumene	Controlled, engineering judgement, based on ratio of propane emissions (1:2 propylene:propane)	88
Propylene	115071		Acrylic acid production	Entire process	30113221	0.0004 lb/lb acrylic acid produced	Controlled (983 incin.), engineering judgement, ratio propane emissions	90
Propylene	115071	2869	Propylene oxide production	Peroxidation process, entire process	301205	0.44 g/kg PO produced	Uncontrolled, based on test data and engineering judgement, assume all C3 is propylene	86
Propylene	115071	2869	Propylene oxide production	Chlorohydrination process, entire process	30120502	8 g/kg PO produced	Uncontrolled, based on test data and engineering judgement, assume all C3 is propylene	86
Propylene	115071	2869	Isopropyl alcohol production	Entire process	301250	7 x 10E-6 kg/kg isopropyl alcohol	Engineering judgement, based on 1900 kg/yr emitted and 260 Gg/yr production	87
Propylene	115071	2869	Acrylonitrile production	Absorber	30125406	0.6 g/kg acrylonitrile produced	Incinerator control, assumed 98% efficient	85
Propylene	115071	2869	Acrylonitrile production - SOHIO process	Absorber vent	30125406	30.0 g/kg acrylonitrile produced	Uncontrolled, based on data from plants and EPA studies	149
Propylene	115071	2869	Acrylonitrile production	Columns	30125408	3 g/kg acrylonitrile produced	Uncontrolled, based on test data and engineering judgement	85
Propylene	115071	2869	Acrylonitrile production	Columns	30125408	0.06 g/kg acrylonitrile	Incinerator control, assumed 98% efficient	85

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Propylene	115071	5541	Vehicle refueling	Vapor loss	40600301	0.0 g/gal of gas pumped	Listed as propylene/propane emission rate	4
Propylene glycol	107962	7699	Tank truck cleaning	Entire process		0.002 lb/truck	Emission measurement	97
Propylene oxide	75569		Sterilization	Retort		470 lb/sterilization event	Based on data for a facility using 18,326 lb PO/year, engineering judgment	24
Propylene oxide	75569	2869	Propylene oxide production by chlorohydrin	Condenser vent	301205	0.016 g/kg propylene oxide produced	Based on VOC of 0.006 g/kg and range of 89.9-100 wt% PO	24
Propylene oxide	75569	2869	Propylene oxide production, peroxidation process	Condenser vent	301205	0.0003 g/kg propylene oxide produced	Based on weighted VOC average emissions and weight percents PO	24
Propylene oxide	75569	2869	Propylene oxide production by chlorohydrin	Reactor vent/saponification column	30120504	0.039 g/kg propylene oxide produced	Based on VOC of 0.043 g/kg and 90% (wt) PO	24
Propylene oxide	75569	2869	Propylene oxide production, peroxidation process	Reactor vent/PO stripping	30120504	0.019 g/kg propylene oxide produced		24
Propylene oxide	75569	2869	Propylene oxide production	Fugitive emissions/equipment leaks	30120580	94.5 Mg/yr	Based on estimated VOC of 331 Mg/yr (91 pump seals in service) and 0.285 wt% PO in stream	24
Propylene oxide	75569	2869	Polyether polyol production	Fugitive emissions/equipment leaks	301250	2 Mg/yr	Based on VOC of 28 Mg/yr (8 pump seals in service) and 7.6 wt% PO in stream	24
Propylene oxide	75569	2869	Propylene glycol production	Fugitives/equipment leaks	301250	16.8 Mg/yr	Based on VOC of 28 Mg/yr (8 pump seals in service) and 60 wt% PO in stream	24
Propylene oxide	75569	2869	Polyether polyol production	Process vent	301250	0.00013 lb/lb PO consumed		24
Propylene oxide	75569	2869	Propylene glycol production	Process vent	301250	0.000028 lb/lb PO consumed		24
Propylene oxide	75569	2869	Propylene oxide production	Storage emissions	407	0.000031 lb/lb PO produced		24
Radionuclides	1094		Uranium mining	Ore loading, dumping		75 Cl 8in-222/g ore and sub-ore mined	Rough est. for avg lrg underground mine w/ ore grade = 0.1% triuranium octoxide	37
Radionuclides	1094		Uranium mining	Sub-ore loading, dumping		25 Cl 8in-222/g ore and sub-ore mined	Rough est. for avg lrg underground mine w/ ore grade = 0.1% triuranium octoxide	37

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Radionuclides		1094	Uranium mining	Reloading ore from stockpile		75 Ci Rn-222/g ore and sub-ore mined	Rough est. for avg lrg underground mine w/ ore grade = 0.1% triuranium octoxide	37
Radionuclides		1094	Uranium mining	Ore stockpile exhalation		265 Ci Rn-222/g ore and sub-ore mined	Rough est. for avg lrg underground mine w/ ore grade = 0.1% triuranium octoxide	37
Radionuclides		1094	Uranium mining	Sub-ore stockpile exhalation		1690 Ci Rn-222/g ore and sub-ore mined	Rough est. for avg lrg underground mine w/ ore grade = 0.1% triuranium octoxide	37
Radionuclides		1094	Uranium mining	Waste rock pile exhalation		140 Ci Rn-222/g waste rock mined	Rough est. for avg lrg underground mine w/ ore grade = 0.1% triuranium octoxide	37
Radionuclides		1094	Uranium mining	Waste rock loading, dumping		0 Ci Rn-222/g waste rock produced	Rough est. for avg lrg underground mine w/ ore grade = 0.1% triuranium octoxide	37
Radionuclides		1094	Uranium mining	Underground uranium mines	30504010	0.004 - 0.19 Ci Rn-222/ton ore processed		35
Radionuclides		1475	Elemental phosphorus production	Non-calciner stack	305019	6.3 nCi/metric ton phos. rock processed	Rough est., stacks emit 0.25 kg PM/metric ton phos. rock processed	37
Radionuclides		1475	Phosphate rock processing	Dryer	30501901	5.2 nCi/metr. ton phosph. rock processed	Rough est. for dryer w/ low energy scrubber release. 130 g PM/ton rock processed	37
Radionuclides		1475	Phosphate rock processing	Grinder	30501902	1.0 nCi/metr. ton phosph. rock processed	Rough est. for dryer w/ low energy scrubber release. 130 g PM/ton rock processed	37
Radionuclides		1475	Elemental phosphorus production	Calciner stack	30501905	6.3 nCi/metr. ton phos. rock processed	Rough est. calciner control. w/ low energy scrub., emit. 0.25 kg PM/metr. ton rock proc.	37
Radionuclides		1475	Elemental phosphorus production	Calciner stack	30501905	25 uCi Rn-222/Mg phos. rock processed	Rough est. calciner control. w/ low energy scrub., emit. 0.25 kg PM/Mg rock processed	37
Radionuclides		1475	Elemental phosphorus production	Calciner stack	30501905	1.3 uCi Pb-210/Mg phos rock processed	Rough est. calciner control. w/ low energy scrub., emit. 0.25 kg PM/Mg rock processed	37
Radionuclides		1475	Elemental phosphorus production	Calciner stack	30501905	2.5 uCi Po-210/Mg phos rock processed	Rough est. calciner control. w/ low energy scrub., emit. 0.25 kg	37

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Radionuclides		2874	Phosphate fertilizer manufacturing - wet proc.	Granular triple superphosphate process	301029	6.0 nCi/metric ton fertilizer produced	PM/Mg rock processed Rough est., U-238, U-234, Th-230 from GSP controlled w/ Venturi scrubber	37
Radionuclides		2874	Phosphate fertilizer manufacturing - wet proc.	Granular triple superphosphate process	301029	2.0 nCi Ra-226/metric ton fertil. prod.	Rough est., controlled with Venturi scrubber, emitting 100 g PM/metric ton fertil. prod.	37
Radionuclides		2874	Phosphate fertilizer manufacturing - wet proc.	Granular triple superphosphate process	301029	3.0 nCi Pb-210/metric ton fertil. prod.	Rough est., controlled with Venturi scrubber, emitting 100 g PM/metric ton fertil. prod.	37
Radionuclides		2874	Phosphate fertilizer manufacturing - wet proc.	Granular triple superphosphate process	301029	3.0 nCi Po-210/metric ton fertil. prod.	Rough est., controlled with Venturi scrubber, emitting 100 g PM/metric ton fertil. prod.	37
Radionuclides		2874	Phosphate fertilizer manufacturing - wet proc.	Diammonium phosphate process	301030	9.8 nCi/metric ton fertilizer produced	Rough est., U-238, U-234, Th-230 from DAP controlled with Venturi scrubber	37
Radionuclides		2874	Phosphate fertilizer manufacturing - wet proc.	Diammonium phosphate process	301030	0.82 nCi Ra-226/metr. ton fertil. prod.	Rough est., controlled w/ Venturi scrubber, emits 164 g PM/metr. ton fertilizer prod.	37
Radionuclides		2874	Phosphate fertilizer manufacturing - wet proc.	Diammonium phosphate process	301030	4.9 nCi Pb-210/metr. ton fertil. prod.	Rough est., controlled w/ Venturi scrubber, emits 164 g PM/metr. ton fertilizer prod.	37
Radionuclides		2874	Phosphate fertilizer manufacturing - wet proc.	Diammonium phosphate process	301030	4.9 nCi Po-210/metr. ton fertil. prod.	Rough est., controlled w/ Venturi scrubber, emits 164 g PM/metr. ton fertilizer prod.	37
Radionuclides		3331	Copper smelting	Entire process	303005	140 nCi U-238/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est., reverberatory furnace, no roaster	37
Radionuclides		3331	Copper smelting	Entire process	303005	140 nCi U-234/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est., reverberatory furnace, no roaster	37
Radionuclides		3331	Copper smelting	Entire process	303005	260 nCi Th-230/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est., roaster reverberatory furnace, no roaster	37
Radionuclides		3331	Copper smelting	Entire process	303005	23 nCi Ra-226/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est., reverberatory furnace, no roaster	37

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Radionuclides		3331	Copper smelting	Entire process	303005	2700 nCi Pb-210/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est., reverberatory furnace, no roaster	37
Radionuclides		3331	Copper smelting	Entire process	303005	2700 nCi Po-210/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est., reverberatory furnace, no roaster	37
Radionuclides		3331	Copper smelting	Entire process	303005	180 nCi Th-232/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est., reverberatory furnace, no roaster	37
Radionuclides		3331	Copper smelting	Entire process	303005	180 nCi Ra-226/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est., reverberatory furnace, no roaster	37
Radionuclides		3331	Copper smelting	Entire process	303005	180 nCi Th-228/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est., reverberatory furnace, no roaster	37
Radionuclides		3331	Copper smelting	Entire process	303005	950 nCi U-238/metric ton Cu	Typical control = acid gas plant, cyclone, water spray, ESP, rough estimate	39
Radionuclides		3331	Copper smelting	Entire process	303005	950 nCi U-234/metric ton Cu	Typical control = acid gas plant, cyclone, water spray, ESP, rough estimate	39
Radionuclides		3331	Copper smelting	Entire process	303005	50 nCi Th-230/metric ton Cu	Typical control = acid gas plant, cyclone, water spray, ESP, rough estimate	39
Radionuclides		3331	Copper smelting	Entire process	303005	36 nCi Ra-226/metric ton Cu	Typical control = acid gas plant, cyclone, water spray, ESP, rough estimate	39
Radionuclides		3331	Copper smelting	Entire process	303005	1500 nCi Pb-210/metric ton Cu	Typical control = acid gas plant, cyclone, water spray, ESP, rough estimate	39
Radionuclides		3331	Copper smelting	Entire process	303005	710 nCi Po-210/metric ton Cu	Typical control = acid gas plant, cyclone, water spray, ESP, rough estimate	39
Radionuclides		3331	Copper smelting	Entire process	303005	29 nCi Th-232/metric ton Cu	Typical control = acid gas plant, cyclone, water spray, ESP, rough estimate	39

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Radionuclides		3331	Copper smelting	Entire process	303005	31 nCi Th-228/metric ton Cu	Typical control = acid gas plant, cyclone, water spray, ESP, rough estimate	39
Radionuclides		3332	Lead smelting	Entire process	303010	42 nCi U-238/metric ton Pb	Rough estimate, control - baghouse, fabric filter or ESP, and acid plant	39
Radionuclides		3332	Lead smelting	Entire process	303010	42 nCi U-234/metric ton Pb	Rough estimate, control - baghouse, fabric filter or ESP, and acid plant	39
Radionuclides		3332	Lead smelting	Entire process	303010	3.6 nCi Th-230/metric ton Pb	Rough estimate, control - baghouse, fabric filter or ESP, and acid plant	39
Radionuclides		3332	Lead smelting	Entire process	303010	2.9 nCi Ra-226/metric ton Pb	Rough estimate, control - baghouse, fabric filter or ESP, and acid plant	39
Radionuclides		3332	Lead smelting	Entire process	303010	130 nCi Pb-210/metric ton Pb	Rough estimate, control - baghouse, fabric filter or ESP, and acid plant	39
Radionuclides		3332	Lead smelting	Entire process	303010	100 nCi Po-210/metric ton Pb	Rough estimate, control - baghouse, fabric filter or ESP, and acid plant	39
Radionuclides		3332	Lead smelting	Entire process	303010	3.5 nCi Th-232/metric ton Pb	Rough estimate, control - baghouse, fabric filter or ESP, and acid plant	39
Radionuclides		3332	Lead smelting	Entire process	303010	3.5 nCi Th-230/metric ton Pb	Rough estimate, control - baghouse, fabric filter or ESP, and acid plant	39
Radionuclides		3332	Zinc smelting	Entire process	303010	110 nCi U-238/metric ton Zn	Rough estimate, controlled with baghouse, fabric filter, acid plant	37
Radionuclides		3332	Zinc smelting	Entire process	303010	110 nCi U-234/metric ton Zn	Rough estimate, controlled with baghouse, fabric filter, acid plant	37
Radionuclides		3332	Zinc smelting	Entire process	303010	56 nCi Th-230/metric ton Zn	Rough estimate, controlled with baghouse, fabric filter, acid plant	37
Radionuclides		3332	Zinc smelting	Entire process	303010	83 nCi Ra-226/metric ton Zn	Rough estimate, controlled with baghouse, fabric filter, acid plant	37

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Radionuclides		3332	Zinc smelting	Entire process	303010	270 nCi Pb-210/metric ton Zn	Rough estimate, controlled with baghouse, fabric filter, acid plant	37
Radionuclides		3332	Zinc smelting	Entire process	303010	270 nCi Po-210/metric ton Zn	Rough estimate, controlled with baghouse, fabric filter, acid plant	37
Radionuclides		3332	Zinc smelting	Entire process	303010	45 nCi Th-232/metric ton Zn	Rough estimate, controlled with baghouse, fabric filter, acid plant	37
Radionuclides		3332	Zinc smelting	Entire process	303010	45 nCi Ra-228/metric ton Zn	Rough estimate, controlled with baghouse, fabric filter, acid plant	37
Radionuclides		3333	Zinc smelting	Entire process	303030	8.0 nCi U-238/metric ton Zn	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Radionuclides		3333	Zinc smelting	Entire process	303030	5.3 nCi U-234/metric ton Zn	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Radionuclides		3333	Zinc smelting	Entire process	303030	20 nCi Th-230/metric ton Zn	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Radionuclides		3333	Zinc smelting	Entire process	303030	64 nCi Ra-226/metric ton Zn	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Radionuclides		3333	Zinc smelting	Entire process	303030	4000 nCi Rn-222/metric ton Zn	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Radionuclides		3333	Zinc smelting	Entire process	303030	360 nCi Pb-210/metric ton Zn	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Radionuclides		3333	Zinc smelting	Entire process	303030	21 nCi Po-210/metric ton Zn	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Radionuclides		3333	Zinc smelting	Entire process	303030	4.8 nCi Th-232/metric ton	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Radionuclides		3333	Zinc smelting	Entire process	303030	4.8 nCi Th-228/metric ton	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Radionuclides		3333	Zinc smelting	Entire process	303030	3.7 nCi U-238/metric ton Zn	Rough estimate, electrolytic reduction, controlled with cyclones, ESP, and SO2 plant	37
Radionuclides		3333	Zinc smelting	Entire process	303030	3.7 nCi U-234/metric ton Zn	Rough estimate, electrolytic reduction, controlled with cyclones, ESP, and SO2 plant	37
Radionuclides		3333	Zinc smelting	Entire process	303030	1.8 nCi Th-230/metric ton Zn	Rough estimate, electrolytic reduction, controlled with cyclones, ESP, and SO2 plant	37
Radionuclides		3333	Zinc smelting	Entire process	303030	2.7 nCi Ra-226/metric ton Zn	Rough estimate, electrolytic reduction, controlled with cyclones, ESP, and SO2 plant	37
Radionuclides		3333	Zinc smelting	Entire process	303030	9.2 nCi Pb-210/metric ton Zn	Rough estimate, electrolytic reduction, controlled with cyclones, ESP, and SO2 plant	37
Radionuclides		3333	Zinc smelting	Entire process	303030	0.92 nCi Po-210/metric ton Zn	Rough estimate, electrolytic reduction, controlled with cyclones, ESP, and SO2 plant	37
Radionuclides		3333	Zinc smelting	Entire process	303030	1.1 nCi Th-232/metric ton Zn	Rough estimate, electrolytic reduction, controlled with cyclones, ESP, and SO2 plant	37
Radionuclides		3333	Zinc smelting	Entire process	303030	1.1 nCi Ra-228/metric ton Zn	Rough estimate, electrolytic reduction, controlled with cyclones, ESP, and SO2 plant	37
Radionuclides		3334	Aluminum reduction	Main stack	303001	67 nCi Cl U-238/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Radionuclides		3334	Aluminum reduction	Main stack	303001	67 nCi Cl U-234/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Radionuclides		3334	Aluminum reduction	Main stack	303001	140 nCi Th-230/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Radionuclides		3334	Aluminum reduction	Main stack	303001	23 nCi Ra-226/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Radionuclides		3334	Aluminum reduction	Main stack	303001	540 nCi Pb-210/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Radionuclides		3334	Aluminum reduction	Main stack	303001	540 nCi Po-210/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Radionuclides		3334	Aluminum reduction	Main stack	303001	110 nCi Th-232/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Radionuclides		3334	Aluminum reduction	Main stack	303001	110 nCi Ra-228/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Radionuclides		3334	Aluminum reduction	Main stack	303001	530 pCi U-238/metric ton Al	Controlled with fluidized-bed scrubber, rough est., center-worked prebake cells	39
Radionuclides		3334	Aluminum reduction	Main stack	303001	530 pCi U-234/metric ton Al	Controlled with fluidized-bed scrubber, rough est., center-worked prebake cells	39
Radionuclides		3334	Aluminum reduction	Main stack	303001	1900 pCi Th-230/metric ton Al	Controlled with fluidized-bed scrubber, rough est., center-worked prebake cells	39
Radionuclides		3334	Aluminum reduction	Main stack	303001	430 pCi Ra-226/metric ton Al	Controlled with fluidized-bed scrubber, rough est., center-worked prebake cells	39
Radionuclides		3334	Aluminum reduction	Main stack	303001	2500 pCi Pb-210/metric ton Al	Controlled with fluidized-bed scrubber, rough est., center-worked prebake cells	39
Radionuclides		3334	Aluminum reduction	Main stack	303001	2100 pCi Po-210/metric ton Al	Controlled with fluidized-bed scrubber, rough est., center-worked prebake cells	39
Radionuclides		3334	Aluminum reduction	Anode bake plant	30300105	0.63 nCi U-238/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Radionuclides		3334	Aluminum reduction	Anode bake plant	30300105	0.63 nCi U-234/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Radionuclides		3334	Aluminum reduction	Anode bake plant	30300105	0.31 nCi Th-230/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Radionuclides		3334	Aluminum reduction	Anode bake plant	30300105	0.47 nCi Ra-226/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Radionuclides		3334	Aluminum reduction	Anode bake plant	30300105	1.6 nCi Pb-210/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Radionuclides		3334	Aluminum reduction	Anode bake plant	30300105	1.6 nCi Po-210/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Radionuclides		3334	Aluminum reduction	Anode bake plant	30300105	0.25 nCi Th-232/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Radionuclides		3334	Aluminum reduction	Anode bake plant	30300105	0.25 nCi Ra-226/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Radionuclides		4911	Coal combustion	Utility boiler	1	9 pCi U-238/g fly ash		37
Radionuclides		4911	Coal combustion	Utility boiler	1	4 pCi Th-232/g fly ash		37
Radionuclides		4911	Coal combustion	Utility	101	3.0 - 17.2 pCi of U-238/kg coal burned	Calculated from information in reference	35
Radionuclides		4911	Coal combustion	Pulverized coal dry bottom utility boilers	101	295.3 pCi U-238/1006 Btu	Range 6.3 to 675.9 pCi U-238/1006 Btu, controlled with ESP	36
Radionuclides		4911	Coal combustion	Pulverized coal dry bottom utility boilers	101	22.5 pCi U-238/1006 Btu	Controlled with ESP and scrubber	36
Radionuclides		4911	Coal combustion	Pulverized coal dry bottom utility boilers	101	73.7 pCi U-238/1006 Btu	Controlled with scrubber	36
Radionuclides		4911	Coal combustion	Cyclone utility boiler	101	68.0 pCi U-238/1006 Btu	Controlled with ESP	36
Radionuclides		4911	Coal combustion	Cyclone utility boiler	101	1757.8 pCi U-238/1006 Btu	Controlled with scrubber, range = 301.2 - 3214.3 pCi U-238/1006 Btu	36
Radionuclides		4911	Coal combustion	Stoker utility boiler	101	13.8 pCi U-238/1006 Btu	Controlled with ESP	36
Radionuclides		4911	Coal combustion	Pulverized coal dry bottom utility boiler	101	170.0 pCi Th-232/1006 Btu	Controlled with ESP, range 50.3-180.7 pCi Th-232/1006 Btu	36
Radionuclides		4911	Coal combustion	Pulverized coal dry bottom utility boiler	101	22.7 pCi Th-232/1006 Btu	Controlled with ESP and scrubber	36
Radionuclides		4911	Coal combustion	Pulverized coal dry bottom utility boiler	101	36.5 pCi Th-232/1006 Btu	Controlled with scrubber	36
Radionuclides		4911	Coal combustion	Cyclone utility boiler	101	40.8 pCi Th-232/1006 Btu	Controlled with ESP	36
Radionuclides		4911	Coal combustion	Cyclone utility boiler	101	170.0 pCi Th-232/1006 Btu	Controlled with scrubber, range 110.2-229.7 pCi Th-232/1006 Btu	36
Radionuclides		4911	Coal combustion	Stoker utility boiler	101	13.8 pCi Th-232/1006 Btu	Controlled with ESP	36

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Radionuclides		4911	Coal combustion	Pulverized coal dry bottom utility boiler	101	6.55 pCi U-238/g of PM emitted	Controlled with ESP, range 3.3-9.2 pCi U-238/g of PM emitted	36
Radionuclides		4911	Coal combustion	Pulverized coal dry bottom utility boiler	101	7.1 pCi U-238/g of PM emitted	Controlled with scrubber and ESP	36
Radionuclides		4911	Coal combustion	Pulverized coal dry bottom utility boiler	101	5.6 pCi U-238/g of PM emitted	Controlled with scrubber	36
Radionuclides		4911	Coal combustion	Pulverized coal dry bottom utility boiler	101	3.0 pCi Th-232/g of PM emitted	Controlled with ESP, range 0.6-5.3 pCi Th-232/g of PM emitted	36
Radionuclides		4911	Coal combustion	Pulverized coal dry bottom utility boiler	101	7.14 pCi Th-232/g of PM emitted	Controlled with ESP and scrubber	36
Radionuclides		4911	Coal combustion	Pulverized coal dry bottom utility boiler	101	2.78 pCi Th-232/g of PM emitted	Controlled with scrubber	36
Radionuclides		4911	Coal combustion	Cyclone utility boiler	101	1.5 pCi U-238/g of PM emitted	Controlled with ESP, range 0.005-3.0 pCi U-238/g PM emitted	36
Radionuclides		4911	Coal combustion	Cyclone utility boiler	101	13.9 pCi U-238/g of PM emitted	Controlled with scrubber, range 0.017-37.5 pCi U-238/g PM emitted	36
Radionuclides		4911	Coal combustion	Cyclone utility boiler	101	1.8 pCi Th-232/g of PM emitted	Controlled with ESP	36
Radionuclides		4911	Coal combustion	Cyclone utility boiler	101	2.09 pCi Th-232/g of PM emitted	Controlled with scrubber, range 1.5-2.68 pCi Th-232/g of PM emitted	36
Radionuclides		4911	Coal combustion	Stoker utility boiler	101	0.003 pCi U-238/g of PM emitted	Controlled with fabric filter	36
Radionuclides		4911	Coal combustion	Stoker utility boiler	101	0.5 pCi U-238/g of PM emitted	Controlled with ESP	36
Radionuclides		4911	Coal combustion	Stoker utility boiler	101	0.5 pCi Th-232/g of PM emitted	Controlled with ESP	36
Radionuclides		4911	Coal combustion	Pulverized coal slag bottom utility boiler	101002	0.004 pCi U-238/g of PM emitted	Controlled with mechanical ppt. and ESP	36
Selenium	7782492		Coal combustion, residential	Bituminous coal-fired furnaces		143 pg/J	Uncontrolled, based on reported emissions data and engineering judgment	54
Selenium	7782492		Coal combustion, residential	Anthracite coal-fired furnaces		99.3 pg/J	Uncontrolled, based on reported emissions data and engineering judgment	54
Selenium	7782492		Coal combustion, residential	Lignite coal-fired furnaces		51.6 pg/J	Uncontrolled, based on reported	54

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Selenium	7782492		Oil combustion, residential	Distillate oil-fired furnaces		2.9 pg/J	emissions data and engineering judgement	54
Selenium	7782492		Wood combustion, residential	Woodstove without baffle		0.13 g/Hg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Selenium	7782492		Coal combustion, industrial	Pulverized boiler	102	48.6 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Selenium	7782492		Coal combustion, industrial	Pulverized boiler	102	41.0 pg/J	Controlled by scrubber, based on reported emissions data and engineering judgement	54
Selenium	7782492		Coal combustion, industrial	Stoker boiler	102	36.1 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Selenium	7782492		Coal combustion, industrial	Stoker boiler	102	84.3 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Selenium	7782492		Oil combustion, industrial	Tangential furnace	102	2.0 pg/J	Controlled by scrubber, based on reported emissions data and engineering judgement	54
Selenium	7782492		Oil combustion, industrial	Tangential furnace	102	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Selenium	7782492		Oil combustion, industrial	Wall furnace	102	2.0 pg/J	Controlled by scrubber, based on reported emissions data and engineering judgement	54
Selenium	7782492		Oil combustion, industrial	Wall furnace	102	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Selenium	7782492		Coal combustion, industrial	Bituminous coal-fired	102002	0.0016 g/kg coal	222 GJ/hr boiler, sampling and test data, controlled	17
Selenium	7782492		Coal combustion, commercial	Stoker boilers	103	84.3 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Selenium	7782492		Oil combustion, commercial	Tangential furnace, residual oil	103004	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Selenium	7782492		Oil combustion, commercial	Wall furnace, residual oil	103004	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Selenium	7782492		Oil combustion, commercial	Tangential furnace, distillate oil	103005	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Selenium	7782492		Oil combustion, commercial	Wall furnace, distillate oil	103005	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Selenium	7782492	3211	Pressed/blown glass manufacturing	Melting furnace	30501404	0.002 g/kg glass	Uncontrolled, engineering judgement	23
Selenium	7782492	4911	Coal combustion, utility	Pulverized boiler, anthracite coal	10100101	13.0 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Selenium	7782492	4911	Coal combustion, utility	Stoker boiler, anthracite coal	10100102	36.1 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Selenium	7782492	4911	Coal combustion, utility	Stoker boiler, bituminous coal	101002	36.1 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Selenium	7782492	4911	Coal combustion, utility	Pulverized wet bottom boiler, bituminous coal	10100201	10.5 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Selenium	7782492	4911	Coal combustion, utility	Pulverized dry bottom boiler, bituminous coal	10100202	13.0 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Selenium	7782492	4911	Coal combustion, utility	Pulverized dry bottom boiler, bituminous coal	10100202	16.3 pg/J	Controlled by scrubber, based on reported emissions data and engineering judgement	54
Selenium	7782492	4911	Coal combustion, utility	Pulverized dry bottom boiler, bituminous coal	10100202	161 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Selenium	7782492	4911	Coal combustion, utility	Cyclone boiler, bituminous coal	10100203	1.4 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Selenium	7782492	4911	Coal combustion, utility	Cyclone boiler, bituminous coal	10100203	33.0 pg/J	Controlled by scrubber, based on reported emissions data and engineering judgement	54
Selenium	7782492	4911	Coal combustion, utility	Stoker boiler, lignite coal	101003	36.1 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Selenium	7782492	4911	Coal combustion, utility	Pulverized dry bottom boiler, lignite coal	10100301	5.7 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Selenium	7782492	4911	Coal combustion, utility	Pulverized wet bottom boiler, lignite coal	10100301	4.6 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Selenium	7782492	4911	Coal combustion, utility	Cyclone boiler, lignite coal	10100303	3.1 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Selenium	7782492	4911	Coal combustion, utility	Cyclone boiler, lignite coal	10100303	3.4 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Selenium	7782492	4911	Oil combustion, utility	Tangential, residual oil	101004	2.0 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Selenium	7782492	4911	Oil combustion, utility	Tangential, residual oil	101004	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Selenium	7782492	4911	Oil combustion, utility	Wall furnace, residual oil	101004	2.0 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Selenium	7782492	4911	Oil combustion, utility	Wall furnace, residual oil	101004	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Selenium	7782492	4953	Municipal waste combustion	RDF unit	501001	2 g/kg refuse	Calculated from max value of three tests, controlled with wet scrubber	19
Selenium	7782492	4953	Municipal waste combustion	Mass burn unit	501001	0.2 g/Mg feed	Calculated from three tests,	21

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Selenium	7782492	4953	Municipal waste combustion	Mass burn unit	501001	0.03 g/Mg feed	average of range, uncontrolled, likely to exclude Se in vapor phase	21
Selenium	7782492	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	0.40 mg/kg dry sludge	One test, scrubber	101
Selenium	7782492	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	1.6 mg/kg dry sludge	Average of four tests, scrubber	101
Selenium	7782492	4953	Sewage sludge incineration	Fluidized-bed incinerator	502005	0.00002 g/kg sludge	Calculated with 0.1% g/day, 600 kg sludge/hr, 10 hr/day	20
Silicon tetrafluoride		2819	Hydrofluoric acid manufacture	Tail gas	30101206	30 lb/ton acid	Uncontrolled, average of data for three plants	97
Silicon tetrafluoride		2819	Hydrofluoric acid manufacture	Tail gas	30101206	0.3 lb/ton acid	Caustic scrubber, average of data for three plants	97
Siloxane	9016006	226	Woven fabric finishing	Tenter frames - resin finish	330001	0.95 mg/kg fabric	Uncontrolled, one test	52
Silver	7440224	226	Woven fabric finishing	Tenter frames - resin finishing	330001	0.19 mg/kg fabric	Uncontrolled, average of four tests	52
Silver	7440224	226	Woven fabric finishing	Thermosol dyeing	330001	0.60 mg/kg fabric	Uncontrolled, average of two tests	52
Silver	7440224	226	Woven fabric finishing	Heat setting	330001	0.013 mg/kg fabric	Uncontrolled, based on test data	52
Silver	7440224	4953	Municipal waste combustion	Incinerator stack	501001	0.001 kg/Mg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, based on material balance for model incinerator	98
Sodium chlorate	7775099		Defoliating/dessicating cotton	Drift during application		20 lb/ton applied	Estimated	97
Sodium hydroxide	1310732	2082	Beer brewing	Bottle washing system	302009	9 lb/hr operation	Uncontrolled, developed by the State of NY and a brewery	158
Sodium hydroxide	1310732	2611	Kraft pulp	Smeit dissolving tank	30700105	4 lb/ton air-dried pulp	Uncontrolled, 8 lb PM/ton air-dried pulp, assume 50% is NaOH	158
Sodium hydroxide	1310732	2611	Kraft pulp	Smeit dissolving tank	30700105	0.025 lb/ton air-dried pulp	Controlled, packed tower, assume 50% of PM is NaOH	158
Sodium hydroxide	1310732	2611	Kraft pulp	Smeit dissolving tank	30700105	0.6 lb/ton air-dried pulp	Controlled, demister pad plus packed tower, assume 50% of PM is NaOH	158

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Sodium hydroxide	1310732	2611	Kraft pulp	Smelt dissolving tank	30700105	0.2 lb/ton air-dried pulp	Controlled, demister pad plus shower, assume 50% PM is NaOH	158
Sodium hydroxide	1310732	2611	Kraft pulp	Smelt dissolving tank	30700105	0.5 lb/ton air-dried pulp	Controlled, demister pad, assume 50% PM is NaOH, range 0.026-1.15 lb NaOH/ton air-dried pulp	158
Sodium hydroxide	1310732	3592	Automobile carburetor manufacture	Manual plating cleaning tanks		0.03 lb/hr/r12 tank	Developed by State agency and plant personnel, assume NaOH is 5.7% soln.	158
Strontium	7440246	226	Woven fabric finishing	Thermosol dyeing	330001	0.0029 mg/kg fabric	Uncontrolled, average of three tests	52
Strontium	7440246	226	Woven fabric finishing	Heat setting	330001	0.0034 mg/kg fabric	Uncontrolled, based on test data	52
Styrene	100425	2821	Styrene-butadiene copolymers - emulsion crumb	Coagulation/blend tanks	301018	0.42 kg/Mg polymer produced	Control status unclear	96
Styrene	100425	2821	Styrene-butadiene copolymers - emulsion crumb	Dryers	301018	2.5 kg/Mg polymer produced	Control status unclear	96
Styrene	100425	2821	Styrene-butadiene copolymers - emulsion latex	Monomer removal	301018	0.15 kg/Mg polymer	Control status unclear	96
Styrene	100425	2821	Styrene-butadiene copolymers - emulsion latex	Blend tanks	301018	0.10 kg/Mg polymer	Control status unclear	96
Styrene	100425	2821	Unsaturated polyester resin	Thinning/blending	301018	0.08 kg/Mg resin	Control status unclear	96
Styrene	100425	2821	Unsaturated polyester resin	Product storage	301018	0.05 kg/Mg resin	Control status unclear	96
Styrene	100425	2821	Unsaturated polyester resin	Styrene storage	301018	0.02 kg/Mg resin	Control status unclear	96
Styrene	100425	2821	Polystyrene - batch process	Monomer storage/feed dissolver	30101817	0.09 kg/Mg polystyrene	Control status unclear	96
Styrene	100425	2821	Polystyrene - batch process	Devolatilizer condenser	30101817	0.5 kg/Mg polystyrene	Control status unclear, range 0.25-0.75	96
Styrene	100425	2821	Polystyrene - batch process	Extruder quench	30101817	0.23 kg/Mg polystyrene	Control status unclear, range 0.15-0.3	96
Styrene	100425	2821	Polystyrene - continuous process	Feed dissolver	30101817	0.008 kg/Mg polystyrene	Control status unclear	96
Styrene	100425	2821	Polystyrene - continuous process	Devolatilizer condenser	30101817	1.5 kg/Mg polystyrene	Control status unclear, range 0.05-2.96	96

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Styrene	100425	2821	Polystyrene - continuous process	Styrene recovery unit	30101817	0.09 kg/Mg polystyrene	Control status unclear, range 0.05-0.13	96
Styrene	100425	2821	Polystyrene - continuous process	Extruder quench	30101817	0.15 kg/Mg polystyrene	Control status unclear, range 0.05-0.13	96
Styrene	100425	2821	Polystyrene - batch process	Reactor	30101818	0.735 kg/Mg polystyrene	Control status unclear, range 0.12-1.35	96
Styrene	100425	2822	Styrene-butadiene rubber produc. by emulsion polymerization	Drying		0.6 g/kg SBR produced	Uncontrolled, based on industry estimates	81
Styrene	100425	2822	Styrene-butadiene rubber produc. by emulsion polymerization	Styrene storage (fugitive)	407036	0.4 g/kg SBR produced	Uncontrolled, based on industry estimates	81
Styrene	100425	2822	Styrene-butadiene rubber produc. by solution polymerization	Styrene storage (breathing)	40703613	0.02 g/kg SBR produced	Uncontrolled, based on engineering estimates	81
Styrene	100425	2822	Styrene-butadiene rubber produc. by emulsion polymerization	Styrene storage (breathing)	40703613	0.02 g/kg SBR produced	Uncontrolled, based on industry estimates	81
Styrene	100425	2865	Ethylbenzene/styrene production	Benzene/toluene vacuum column	30116901	0.0365 kg/Mg EB-S	Control status unclear	96
Styrene	100425	2865	Ethylbenzene/styrene production	Nonbenzene/toluene vacuum columns	30116901	0.0164 kg/Mg EB-S	Control status unclear	96
Styrene	100425	4953	Wastewater treatment	POTW	50100701	0.50 Mg/Mg styrene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Sulfur monochloride	10025679	2869	CCl ₄ production - CS ₂ chlorination	Separation	30130201	1.0 g/kg produced	Control uncertain, based on tests and mass balance	95
Sulfuric acid	7664939	2865	Toluene diisocyanate production	Sulfuric acid concentrator	30118102	0.009 g/kg TDI produced	Calculated from 0.18% (wt.) in emission stream and 5 g VOC/kg TDI	153
Sulfuric acid mist	7664939	2819	Sulfuric acid production - contact process	Entire process - raw material is recovered sulfur	30102201	0.35-0.8 lb/ton acid	Uncontrolled, emission proportional to % oleum in product	97
Sulfuric acid mist	7664939	2819	Sulfuric acid production - contact process	Entire process - dark virgin sulfur	30102201	0.32-6.3 lb/ton acid	Uncontrolled, emission proportional to % oleum in product	97

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Sulfuric acid mist	7664939	2819	Sulfuric acid production - contact process	Entire process - sulfide ore	30102201	1.2-7.4 lb/ton acid	Uncontrolled, emission proportional to % oleum in product	97
Sulfuric acid mist	7664939	2819	Sulfuric acid production - contact process	Entire process - spent acid	30102201	2.2-2.4 lb/ton acid	Uncontrolled, emission proportional to % oleum in product	97
Sulfuric acid mist	7664939	2819	Sulfuric acid production - contact process	Entire process - bright virgin sulfur	30102201	1.7 lb/ton acid	Uncontrolled	97
Terephthalic acid	100210	2869	Purified terephthalic acid production	Crystallizer vent	30103103	0.098 g/kg TPA	Uncontrolled, particulate	62
Terephthalic acid	100210	2869	Purified terephthalic acid production	Dryer vent	30103103	0.0012 g/kg TPA	Uncontrolled, particulate	62
Terephthalic acid	100210	2869	Purified terephthalic acid production	Feed slurry vent tank	30103199	0.088 g/kg TPA	Uncontrolled, particulate	62
Terephthalic acid	100210	2869	Purified terephthalic acid production	Atmospheric centrifuge tank	30103199	0.023 g/kg TPA	Uncontrolled, particulate	62
Terephthalic acid	100210	2869	Purified terephthalic acid production	Silo dust collector vent	30103199	0.0017 g/kg TPA	Uncontrolled, particulate	62
Tetrachlorobenzenes		226	Woven fabric finishing	Tenter frames - resin finish	330001	17 mg/kg fabric	Uncontrolled, based on one test	52
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016		Mobile internal combustion sources	Automobiles		Not detectable	Sample was a scraping from muffler of car using leaded gas, detection limit = 0.002 ng/g	119
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016		Mobile internal combustion sources	Automobile emissions		2.98 ng/g	Samples of the filter extract (n = 3) from a car using leaded gas	119
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016		Mobile internal combustion sources	Automobile emissions		Not detectable	Sample - scraping from muffler, car used unleaded gas w/ catalytic converter, detec. limit 0.003 ng/g	119
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016		Mobile internal combustion sources	Automobile emissions		1.4 ng/g	Sample of filter extract, car used unleaded gas + catalytic converter	119
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016		Mobile internal combustion sources	Diesel truck emissions		Not detectable - 0.003 ng/g	Samples of scrapings from 2 mufflers, diesel fuel used	119
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016		Mobile internal combustion sources	Diesel car emissions		Not detectable	Samples of two filter extracts, diesel fuel used	119
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	26	Kraft paper recovery boilers	Stack	307	Not detectable	Three locations tested, detection limit <0.1 ng/dscm @ 3% O ₂	115

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	33	Secondary copper smelting	Stack	304	170 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Organics removal from wastewater - activated carbon	Regeneration of activated carbon using fluidized bed system - flue gas		0.01 - 0.21 ng/m ³	No afterburner, prechlorin. of wastewater performed	119
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Organics removal from wastewater - activated carbon	Regeneration of activated carbon using fluidized bed system - particulate		4.3 - 51 ng/g	No afterburner, prechlorin. of wastewater performed	119
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Organics removal from wastewater - activated carbon	Regeneration of activated carbon using fluidized bed system - stack		Not detectable	With afterbur., postchlorin. of wastewater relative to activated carbon bed, detec.limit 0.006 ng/m ³	119
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Organics removal from wastewater - activated carbon	Regeneration of activated carbon using fluidized bed system - afterburner		Not detectable	With afterbur., postchlorin. of wastewater relative to activated carbon bed, detec.limit 0.006 ng/m ³	119
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Organics removal from wastewater - activated carbon	Regeneration of activated carbon using fluidized bed system - recuperator		Not detectable	With afterbur., postchlorin. of wastewater relative to activated carbon bed, detec.limit 0.006 ng/m ³	119
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Industrial carbon regeneration	Stack		Not detectable	Tier 4 stack testing, detection limit <0.1 ng/dscm @ 3% O ₂	115
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Oil combustion	Boiler flue gas	1	Not detectable	Low ash, 2% sulfur oil, sampled after heat exch., before ESP, 2578-1000 detec. limit=<4.2-<7.9 ng/m ³	119
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Coal combustion	Flue gas, coal-fired boiler	101	Not detectable	Pulverized coal, low sulfur, high ash, one location, detection limits ranged <5.4 - <6.8 ng/m ³	119
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Oil and coal combustion	Stack - particulate	102	Not detectable	One location, detection limit = 10 ng/g	119
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Boilers cofiring wastes - Industrial	Flue gas	102	Not detectable - <1.5 ng/m ³	Cofiring waste containing chlorinated material, nine locations, detected at only two sites	119
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Drum and barrel furnace	Stack	5	0.05 ng/dscm @ 3% O ₂	Tier 4 stack test sampling	115
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Sewage sludge incineration	Stack	5	Not detectable - 0.14 ng/dscm	Three locations tested, detection	115

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
in, 2,3,7,8-Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Wire reclamation incineration	Stack	5	0.07 ng/dscm @ 3% O ₂	Limit <0.1 ng/dscm @ 3% O ₂ Estimated value from stack test results	115
in, 2,3,7,8-Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Wood combustion	Stack, industrial wood-fired boiler	5	0.28 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
in, 2,3,7,8-Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Hazardous waste incineration	Stack - fly ash	5	Not detectable - 110 ng/g	3 sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
in, 2,3,7,8-Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Hazardous waste incineration	Rotary kiln - particulate	503	Not detectable - 5500 ng/g	One location, n = 3, both solid & liquid waste, no supplementary fuel used	119
in, 2,3,7,8-Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Hazardous waste incineration	Rotary kiln - particulate	503	MD	One location, n = 5, both solid & liquid waste, use of supplementary fuel	119
in, 2,3,7,8-Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	49	Hazardous waste incineration	Tar burner - particulate	503	Not detectable	One location, n = 4, Uses natural gas as suppl. fuel, detection limit = 13 - 3.0 ng/g	119
in, 2,3,7,8-Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	4953	Municipal waste combustion	Mass burn with wastewater	5	0.101 - 62.5 ng/m ³ @ 12% O ₂	n = 10, 6 locations, controlled with an ESP	118
in, 2,3,7,8-Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	4953	Municipal waste combustion	Mass burn with wastewater	5	0.39 - 289 ug/kg feed	n = 6, 4 locations, controlled with an ESP	118
in, 2,3,7,8-Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	4953	Municipal waste combustion	ESP catch - fly ash	5	Not detectable - 100 ng/g	Appr. 60 sites tested, homologue data given in refer., isomer data may be avail. from indiv. refer.	116
in, 2,3,7,8-Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	4953	Municipal waste combustion	Flue gas from stack - fly ash	5	0.41 - 1.7 ng/m ³	Four sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
in, 2,3,7,8-Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	0.0009 ug/kg dry sludge	Average of four tests, scrubber	101
in, 2,3,7,8-Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	4953	Mobile internal combustion sources	Automobile emissions		47.7 ng/g	Samples of the filter extract (n = 3) from a car using leaded gas	119
in, 2,3,7,8-Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	4953	Mobile internal combustion sources	Automobile emissions		37.4 ng/g	Sample of filter extract, car used unleaded gas + catalytic converter	119
in, 2,3,7,8-Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	4953	Mobile internal combustion sources	Diesel car emissions		Not detectable	Samples of two filter extracts,	119

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
ins			sources				diesel fuel used	
Tetrachlorodibenzo-p-diox ins	26		Kraft paper recovery boilers	Stack	307	Not detectable - 0.13 ng/dscm @ 3% O ₂	Three locations tested, detection limit <0.1 ng/dscm @ 3% O ₂ , does not include 2,3,7,8-isomer	115
Tetrachlorodibenzo-p-diox ins	33		Secondary copper smelting	Stack	304	1400 ng/dscm @ 3% O ₂	Estimated value from stack test results, does not include 2,3,7,8-isomer	115
Tetrachlorodibenzo-p-diox ins	49		Organics removal from wastewater - activated carbon	Regeneration of activated carbon using fluidized bed system - flue gas		0.06 - 0.3 ng/m ³	No afterburner, prechlorin. of wastewater performed	119
Tetrachlorodibenzo-p-diox ins	49		Organics removal from wastewater - activated carbon	Regeneration of activated carbon using fluidized bed system - particulate		36 - 66 ng/g	No afterburner, prechlorin. of wastewater performed	119
Tetrachlorodibenzo-p-diox ins	49		Industrial carbon regeneration	Stack		0.57 ng/dscm @ 3% O ₂	Tier 4 stack testing, does not include 2,3,7,8-isomer	115
Tetrachlorodibenzo-p-diox ins	49		Coal combustion	fly ash, coal-fired boiler	101	Not detectable	Eight locations, controls unknown, detection limit 0.002 ng/g	119
Tetrachlorodibenzo-p-diox ins	49		Coal combustion	Stack - fly ash, coal-fired boiler	101	Not detectable	Low sulfur, high ash, one location, detection limit 0.006 ng/g	119
Tetrachlorodibenzo-p-diox ins	49		Wire reclamation incineration	Incinerator stack	5	0.41 ng/g	One facility tested	119
Tetrachlorodibenzo-p-diox ins	49		Wire reclamation incineration	Stack - fly ash	5	0.41 ng/g	One study, three furnaces	119
Tetrachlorodibenzo-p-diox ins	49		Wire reclamation incineration	Furnace - ash	5	0.58 ng/g	One study, three furnaces	119
Tetrachlorodibenzo-p-diox ins	49		Drum and barrel furnace	Stack	5	1.2 ng/dscm @ 3% O ₂	Tier 4 stack test sampling, except the 2,3,7,8 isomer	115
Tetrachlorodibenzo-p-diox ins	49		Sewage sludge incineration	Stack	5	0.40 - 11 ng/dscm @ 3% O ₂	Three locations tested, does not include 2,3,7,8-isomer	115
Tetrachlorodibenzo-p-diox ins	49		Wire reclamation incineration	Stack	5	1.2 ng/dscm @ 3% O ₂	Estimated value from stack test results, does not include 2,3,7,8-isomer	115
Tetrachlorodibenzo-p-diox ins	49		Wood combustion	Stack, industrial wood-fired boiler	5	47 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing, does not include	115

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Tetrachlorodibenzo-p-dioxins		49	Hazardous waste incineration	Stack - fly ash	5	Not detectable - 12,000 ng/g	2,3,7,8-isomer 3 sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Tetrachlorodibenzo-p-dioxins		49	Wire reclamation incineration	Stack - fly ash	5	0.41 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Tetrachlorodibenzo-p-dioxins		49	Industrial waste incinerators	Stack - fly ash	503	100 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Tetrachlorodibenzo-p-dioxins		4953	Municipal waste combustion	Mass burn	5	0.20 - 1200 ng/m ³ @ 12% CO ₂	Developed from test data w/ various controls - ESP or water spray humidifier/dry sorbent injection	117
Tetrachlorodibenzo-p-dioxins		4953	Municipal waste combustion	Modular	5	1.0 - 43.7 ng/m ³ @ 12% CO ₂	Developed from test data, all uncontrolled	117
Tetrachlorodibenzo-p-dioxins		4953	Municipal waste combustion	BOF-fired	5	3.5 - 260 ng/m ³ @ 12% CO ₂	Developed from test data, most ESP controlled, one with ESP/cyclone	117
Tetrachlorodibenzo-p-dioxins		4953	Municipal waste combustion	ESP catch - fly ash	5	Not detectable - 110 ng/g	Appr. 60 sites tested, homologue data given in refer., isomer data may be avail. from indiv. refer.	116
Tetrachlorodibenzo-p-dioxins		4953	Municipal waste combustion	Stack - fly ash	5	57 ng/m ³	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Tetrachlorodibenzo-p-dioxins		4953	Municipal waste combustion	Stack - fly ash	5	2 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Tetrachlorodibenzo-p-dioxins		4953	Municipal waste combustion	Flue gas from stack - fly ash	5	3.05 - 128 ng/m ³	Four sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Tetrachlorodibenzo-p-dioxins		806	Hospital waste incineration	Incinerator	315020	1.26 x 10 ⁻⁶ lb/ton feed	Uncontrolled, test data	9
Tetrachlorodibenzo-p-dioxins, total		49	Coal and refuse-derived fuel combustion	Flue gas	1	Not detectable	One location, detection limit = 5 ng/m ³ , 15% ROF	119
Tetrachlorodibenzo-p-dioxins		4953	Municipal waste combustion	Mass burn with waterwall	5	6.34 - 3020 ug/Mg feed	n = 7, 4 locations, controlled	118

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
ins, total							with an ESP	
Tetrachlorodibenzo-p-dioxin, total		4953	Municipal waste combustion	Mass burn with waterwall	5	19.9 - 3500 ng/m ³ @ 12% CO ₂	n = 8, 3 locations, controlled with an ESP	118
Tetrachlorodibenzo-p-dioxin, total		4953	Sewage sludge incineration	Multiple hearth furnace	50100506	0.0777 ug/kg dry sludge	Average of five tests, scrubber	101
Tetrachlorodibenzofuran, 2,3,7,8-	51207319	26	Kraft paper recovery boilers	Stack	307	0.01 - 0.02 ng/dscm @ 3% O ₂	Three locations tested	115
Tetrachlorodibenzofuran, 2,3,7,8-	51207319	33	Secondary copper smelting	Stack	304	5100 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Tetrachlorodibenzofuran, 2,3,7,8-	51207319	49	Industrial carbon regeneration	Stack		Not detectable	Tier 4 stack testing, detection limit <0.1 ug/dscm @ 3% O ₂	115
Tetrachlorodibenzofuran, 2,3,7,8-	51207319	49	Oil combustion	Flue gas	1	Not detectable	Low ash, 2% sulfur oil, sampled after heat exch., before ESP, 2378-TODO detect. limit <0.67-1.3ng/m ³	119
Tetrachlorodibenzofuran, 2,3,7,8-	51207319	49	Coal combustion	Flue gas, coal-fired boiler	101	Not detectable	Pulverized coal, low sulfur, high ash, one location, detection limits ranged <0.86 - <1.1 ng/m ³	119
Tetrachlorodibenzofuran, 2,3,7,8-	51207319	49	Drum and barrel furnace	Stack	5	0.90 ng/dscm @ 3% O ₂	Tier 4 stack test sampling	115
Tetrachlorodibenzofuran, 2,3,7,8-	51207319	49	Sewage sludge incineration	Stack	5	2.1 - 54 ng/dscm @ 3% O ₂	Two locations tested	115
Tetrachlorodibenzofuran, 2,3,7,8-	51207319	49	Wire reclamation incineration	Stack	5	0.40 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Tetrachlorodibenzofuran, 2,3,7,8-	51207319	49	Wood combustion	Stack, industrial wood-fired boiler	5	1.8 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
Tetrachlorodibenzofuran, 2,3,7,8-	51207319	4953	Municipal waste combustion	Mass burn with waterwall	5	0.96 - 448 ng/m ³ @ 12% CO ₂	n = 8, 5 locations, controlled with an ESP	118
Tetrachlorodibenzofuran, 2,3,7,8-	51207319	4953	Municipal waste combustion	Mass burn with waterwall	5	8.95 - 1130 ug/Mg feed	n = 4, 3 locations, controlled with an ESP	118
Tetrachlorodibenzofuran, 2,3,7,8-	51207319	4953	Municipal waste combustion	ESP catch - fly ash	5	Not detectable - 300 ng/g	Appr. 60 sites tested, homologue data given in refer., isomer data may be avail. from indiv. refer.	116

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Tetrachlorodibenzofuran, 2,3,7,8-	51207319	4953	Municipal waste combustion	Flue gas from stack - fly ash	5	Not detectable - 10.3 ng/m ³	Four sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Tetrachlorodibenzofuran, 2,3,7,8-	51207319	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	0.1232 ug/kg dry sludge	Average of four tests, scrubber	101
Tetrachlorodibenzofuran	26		Kraft paper recovery boilers	Stack	307	0.13 - 0.46 ng/dscm @ 3% O ₂	Three locations tested, does not include 2,3,7,8-isomer	115
Tetrachlorodibenzofuran	33		Secondary copper smelting	Stack	304	18,000 ng/dscm @ 3% O ₂	Estimated value from stack test results, does not include 2,3,7,8-isomer	115
Tetrachlorodibenzofuran	49		Organics removal from wastewater - activated carbon	Regeneration of activated carbon using fluidized bed system - flue gas		0.08 - 0.51 ng/m ³	No afterburner, prechlorin. of wastewater performed	119
Tetrachlorodibenzofuran	49		Organics removal from wastewater - activated carbon	Regeneration of activated carbon using fluidized bed system - particulate		Not detectable - 245 ng/g	No afterburner, prechlorin. of wastewater performed, detection limit = 4 ng/g	119
Tetrachlorodibenzofuran	49		Industrial carbon regeneration	Stack		1.2 ng/dscm @ 3% O ₂	Tier 4 stack testing, does not include 2,3,7,8-isomer	115
Tetrachlorodibenzofuran	49		Wire reclamation incineration	Bottom ash	5	11.6 ng/g	One facility tested	119
Tetrachlorodibenzofuran	49		Wire reclamation incineration	Stack - fly ash	5	11.6 ng/g	One study, three furnaces	119
Tetrachlorodibenzofuran	49		Wire reclamation incineration	Furnace - ash	5	0.73 ng/g	One study, three furnaces	119
Tetrachlorodibenzofuran	49		Drum and barrel furnace	Stack	5	14 ng/dscm @ 3% O ₂	Tier 4 stack test sampling, except the 2,3,7,8-isomer	115
Tetrachlorodibenzofuran	49		Sewage sludge incineration	Stack	5	19 - 150 ng/dscm @ 3% O ₂	Three locations tested, does not include 2,3,7,8-isomer	115
Tetrachlorodibenzofuran	49		Wire reclamation incineration	Stack	5	20 ng/dscm @ 3% O ₂	Estimated value from stack test results, does not include 2,3,7,8-isomer	115
Tetrachlorodibenzofuran	49		Wood combustion	Stack, industrial wood-fired boiler	5	37 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing, does not include 2,3,7,8-isomer	115
Tetrachlorodibenzofuran	49		Wire reclamation incineration	Stack - fly ash	5	11.6 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Tetrachlorodibenzofurans		49	Industrial waste incinerators	Stack - fly ash	503	100 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Tetrachlorodibenzofurans	4953		Municipal waste combustion	Mass burn	5	0.32 - 6600 ng/Mu3 @ 12% CO2	Developed from test data, w/ various controls - ESP or water spray humidifier/dry sorbent injection	117
Tetrachlorodibenzofurans	4953		Municipal waste combustion	Modular	5	12.2 - 345 ng/Mu3 @ 12% CO2	Developed from test data, all uncontrolled	117
Tetrachlorodibenzofurans	4953		Municipal waste combustion	ROF-fired	5	22 - 680 ng/Mu3 @ 12% CO2	Developed from test data, most ESP controlled, one with ESP/cyclone	117
Tetrachlorodibenzofurans	4953		Municipal waste combustion	ESP catch - fly ash	5	Not detectable - 300 ng/g	Appr. 60 sites tested, homologue data given in refer., isomer data may be avail. from indiv. refer.	116
Tetrachlorodibenzofurans	4953		Municipal waste combustion	Stack - fly ash	5	161 ng/m3	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Tetrachlorodibenzofurans	4953		Municipal waste combustion	Stack - fly ash	5	7 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Tetrachlorodibenzofurans	4953		Municipal waste combustion	Flue gas from stack - fly ash	5	10.6 - 309 ng/m3	Four sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Tetrachlorodibenzofurans	806		Hospital waste incineration	Incinerator	315020	0.33 x 10E-6 lb/ten feed	Uncontrolled, test data	9
Tetrachlorodibenzofurans, total	4953		Municipal waste combustion	Mass burn with waterwall	5	7.3 - 4560 ng/Mu3 @ 12% CO2	n = 11, 6 locations, controlled with an ESP	118
Tetrachlorodibenzofurans, total	4953		Municipal waste combustion	Mass burn with waterwall	5	28.7 - 17,200 ug/Mg feed	n = 7, 4 locations, controlled with an ESP	118
Tetrachlorodibenzofurans, total	4953		Municipal waste combustion	Starved air combustor	5	12.2 - 124 ng/Mu3 @ 12% CO2	n = 5, 3 locations, no controls	118
Tetrachlorodibenzofurans, total	4953		Municipal waste combustion	Starved air combustor	5	43 - 525 ug/Mg feed	n = 5, 3 locations, no controls	118
Tetrachlorodibenzofurans, total	4953		Municipal waste combustion	ROF-fired combustor	5	46.9 - 5800 ng/Mu3	n = 8, 3 locations, controlled with an ESP	118

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Tetrachlorodibenzofurans, total		4953	Sewage sludge incineration	Multiple hearth furnace	50100506	0.4721 ug/kg dry sludge	Average of five tests, scrubber	101
Tin	7440315	226	Woven fabric finishing	Tenter frames - resin finishing	330001	1.9 mg/kg fabric	Uncontrolled, average of four tests	52
Tin	7440315	226	Woven fabric finishing	Thermacol dyeing	330001	0.34 mg/kg fabric	Uncontrolled, average of three tests	52
Tin	7440315	226	Woven fabric finishing	Heat setting	330001	0.81 mg/kg fabric	Uncontrolled, based on test data	52
Tin	7440315	226	Woven fabric finishing	Curing oven - resin finish	330001	0.78 mg/kg fabric	Uncontrolled, average of three tests	52
Titanium	7440326	226	Woven fabric finishing	Heat setting	330001	0.0004 mg/kg fabric	Uncontrolled, based on test data	52
Toluene	106583		Wood combustion, residential	Small airtight woodstoves, birch wood		16.7 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Toluene	106583		Wood combustion, residential	Small airtight woodstoves, birch wood		2273 mg/kg dry fuel burned	Starved air conditions, based on emission tests	57
Toluene	106583		Wood combustion, residential	Small airtight woodstoves, spruce wood		384 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Toluene	106583		Gasoline use	Evaporation from automobiles		2.2 x 10E-5 lb/vehicle mile traveled	Engineering calculations	13
Toluene	106583		Mobile internal combustion sources	Automobile exhaust		8.46 x 10E-4 lb/vehicle mile traveled	Engineering calculations	13
Toluene	106583		Waste oil combustion	Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	0.036 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, assumes 97% DRE	55
Toluene	106583		Use as a solvent in paints	Coating application	40200101	1.0 lb/lb used	Assume all toluene is eventually released to atmosphere	13
Toluene	106583		Use as a thinning solvent	Toluene	40200922	1.0 lb/lb used	Assume all toluene is eventually released to atmosphere	13
Toluene	106583	2491	Wood preserving	Thermal (pan) evaporation of pentachlorophenol wastewater		<5 mg/sm ³ gas vented	Average value	6
Toluene	106583	2491	Wood preserving	Incineration of waste	307005	Not detectable	Controlled with baghouse	6
Toluene	106583	2822	Neoprene manufacture	Batch polykettles	301026	0.018 g/kg neoprene	Engineering judgement	123

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Toluene	106683	2822	Neoprene manufacture	Strippers	30102611	0.019 g/kg neoprene	Engineering judgment	123
Toluene	106683	2822	Neoprene manufacture	Solution makeup tank	30102611	0.04 g/kg neoprene	Engineering judgment	123
Toluene	106683	2822	Neoprene manufacture	Wash belts	30102611	0.15 g/kg neoprene	Engineering judgment	123
Toluene	106683	2822	Neoprene manufacture	Dryer exhaust	30102611	2.0 g/kg neoprene	Engineering judgment	123
Toluene	106683	2822	Neoprene manufacture	Blend tanks	30102616	0.05 g/kg neoprene	Engineering judgment	123
Toluene	106683	2865	Benzoic acid production	Process - general	301	1.0 x 10E-3 lb/lb used	Engineering estimate	13
Toluene	106683	2865	Benzoic acid production	Fugitive	301	1.0 x 10E-4 lb/lb used	Engineering estimate	13
Toluene	106683	2865	Benzyl chloride production	Process - general	301	5.5 x 10E-4 lb/lb used	Engineering estimate	13
Toluene	106683	2865	Benzyl chloride production	Fugitive	301	1.5 x 10E-4 lb/lb used	Engineering estimate	13
Toluene	106683	2865	Vinyl toluene production	Process - general	301	5.5 x 10E-4 lb/lb used	Engineering estimate	13
Toluene	106683	2865	Vinyl toluene production	Fugitive	301	1.5 x 10E-4 lb/lb used	Engineering estimate	13
Toluene	106683	2865	Xylene disproportionation production	Process - general	301	5.0 x 10E-5 lb/lb used	Engineering estimate	13
Toluene	106683	2865	Xylene disproportionation production	Fugitive	301	5.0 x 10E-5 lb/lb used	Engineering estimate	13
Toluene	106683	2865	Cresol(p-) production	Process - general	301	1.2 x 10E-3 lb/lb used	Engineering estimate	13
Toluene	106683	2865	Cresol(p-) production	Fugitive	301	3.0 x 10E-4 lb/lb used	Engineering estimate	13
Toluene	106683	2865	Benzaldehyde production	Process - general	301	9.0 x 10E-4 lb/lb used	Engineering estimate	13
Toluene	106683	2865	Benzaldehyde production	Fugitive	301	2.0 x 10E-4 lb/lb used	Engineering estimate	13
Toluene	106683	2865	Toluene diisocyanate production	General	30118101	7.7 x 10E-4 lb/lb used	Engineering estimate	13
Toluene	106683	2865	Toluene diisocyanate production	Fugitive	30118180	1.9 x 10E-4 lb/lb used	Engineering estimate	13
Toluene	106683	2865	Benzene production	General	30125801	5.0 x 10E-5 lb/lb used	From State air emission files	13
Toluene	106683	2865	Toluene production	General	30125805	1.7 x 10E-4 lb/lb produced	Average of four values given for four different processes	13

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Toluene	108883	2865	Toluene production	Storage	407036	4.65×10^{-4} lb/lb produced	Average of four values given for four different processes	13
Toluene	108883	2865	Benzene production	Storage	407036	1.0×10^{-4} lb/lb used	From State air emission files	13
Toluene	108883	2865	Vinyl toluene production	Storage	407036	3.0×10^{-4} lb/lb used	Engineering estimate	13
Toluene	108883	2865	Xylene disproportionation production	Storage	407036	1.0×10^{-4} lb/lb used	Engineering estimate	13
Toluene	108883	2865	Cresol(p-) production	Storage	407036	5.0×10^{-4} lb/lb used	Engineering estimate	13
Toluene	108883	2865	Benzic acid production	Storage	407040	4.4×10^{-4} lb/lb used	Engineering estimate	13
Toluene	108883	2865	Benzyl chloride production	Storage	407060	3.0×10^{-4} lb/lb used	Engineering estimate	13
Toluene	108883	2865	Toluene diisocyanate production	Storage	407064	3.2×10^{-4} lb/lb used	Engineering estimate	13
Toluene	108883	2865	Benzaldehyde production	Storage	407172	4.0×10^{-4} lb/lb used	Engineering estimate	13
Toluene	108883	2869	Phosgene production by chlorination of CO	Absorption		1.25 g/kg produced	Control uncertain, based on tests and mass balance	95
Toluene	108883	2911	Petroleum refinery with cracking/reforming	Fugitives	306	21 lb/ton total HC	Assumes fugitives are 1.05% toluene	92
Toluene	108883	2911	Petroleum refinery without cracking/reforming	Fugitives	306	2.1 lb/ton THC	Assumes toluene is 0.105% of THC	92
Toluene	108883	2911	Toluene production via catalytic reformate	Cracking unit	306002	2.0×10^{-5} lb/lb produced		13
Toluene	108883	3312	Coke manufacture	Coke oven	303003	2.4×10^{-4} lb/lb coke produced		13
Toluene	108883	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	8.6 mg/kg dry sludge	Average of five tests, scrubber	101
Toluene	108883	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	0.07 mg/kg dry sludge	One test, scrubber	101
Toluene	108883	4953	Wastewater treatment	POTW	50100701	0.58 Mg/Mg toluene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Toluene	108883	4953	Solvent recycling facility	Evaporation pond	503008	0.63 kg/hectare-hr	Based on two different sampling methods at the same site	12

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Toluene	108883	4953	Petroleum refinery sludge	Land treatment	50300820	1.4 kg/hectare-hr	Emissions measured within 1 hr. of sludge application to landfill	12
Toluene	108883	5541	Vehicle refueling	Vapor loss	40600301	0.080 g/gal of gas pumped	Listed as toluene/2,3-dimethylhexane emission rate	4
Toluene	108883	5541	Gasoline marketing activities	Service stations	40600401	4.97 x 10E-5 lb/lb gasoline consumed	Engineering calculations	13
Trichlorobenzene, 1,2,4-	120821	2491	Wood preserving	Application and handling of 1,2,4-TCB containing preservative	307	20 lbs/ton 1,2,4-TCB used	Based on emissions estimate of <1% lost of total use	48
Trichlorobenzene, 1,2,4-	120821	2879	Manufacture of pesticide intermediates - Dicamba	Fugitives and handling emissions	301033	20 lbs/ton pesticide produced	Based on emissions estimate of <1% lost total production	48
Trichlorobenzene, 1,2,4-	120821	2879	Manufacture of pesticide intermediates - Stirofos	Fugitives and handling emissions	301033	20 lbs/ton pesticide produced	Based on emissions estimate of <1% lost total production	48
Trichlorobenzene, 1,2,4-	120821	36	Use of dielectric fluid in electrical apparatus	Fugitives	313	0.116 lbs/ton fluid used	Based on material balance	48
Trichlorobenzene, 1,2,4-	120821	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<28 ug/kg dry sludge	One test, scrubber	101
Trichlorobenzene, 1,2,4-	120821	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	<1090 ug/kg dry sludge	Average of two tests, scrubber	101
Trichlorobenzene, 1,2,4-	120821	4953	Wastewater treatment	POTW	50100701	0.37 Mg/Mg 1,2,4-trichlorob. in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Trichlorobenzenes	12002481	226	Woven fabric finishing	Thermosol dyeing	330001	0.68 mg/kg fabric	Uncontrolled, one test	52
Trichlorobenzenes	12002481	226	Woven fabric finishing	Tenter frames - resin finish	330001	380 mg/kg fabric	Uncontrolled, based on one test	52
Trichlorobenzenes	12002481	226	Woven fabric finishing	Curing ovens - resin finish	330001	0.064 mg/kg fabric	Uncontrolled, one test	52
Trichlorodibenzodioxin (total)		4953	Sewage sludge incineration	Multiple hearth furnace	50100506	0.1567 ug/kg dry sludge	Average of two tests, scrubber	101
Trichlorodibenzofurans, total		4953	Sewage sludge incineration	Multiple hearth furnace	50100506	0.728 ug/kg dry sludge	Average of two tests, scrubber	101
Trichloroethylene	79016		Waste oil combustion	Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	0.031 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, assumes 97% DRE	55

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Trichloroethylene	79016		Degreasing operations using TCE	Open top vapor degreasers	40100205	0.93 kg/kg fresh (virgin) TCE used	Uncontrolled, based on material balance	76
Trichloroethylene	79016		Degreasing operations using TCE	Open top vapor degreasers	40100205	0.89 kg/kg fresh (virgin) TCE used	Controlled by above or below freezing refrigerated freeboard chiller, based on material balance	76
Trichloroethylene	79016		Degreasing operations using TCE	Conveyorized vapor degreaser	40100225	0.96 kg/kg fresh (virgin) TCE used	Uncontrolled, based on material balance	76
Trichloroethylene	79016		Degreasing operations using TCE	Conveyorized vapor degreaser	40100225	0.91 kg/kg fresh (virgin) TCE used	Controlled by carbon absorber or refrigerated freeboard chiller, based on material balance	76
Trichloroethylene	79016		Degreasing operations using TCE	Cold cleaners	40100306	0.84 kg/kg fresh (virgin) TCE used	Uncontrolled, based on material balance	76
Trichloroethylene	79016		Degreasing operations using TCE	Cold cleaners	40100306	0.82 kg/kg fresh (virgin) TCE used	Controlled by 0.7 freeboard ratio & drainage rack w/ 15 sec. drain time, based on material balance	76
Trichloroethylene	79016		Application of paints and coatings	Entire process	402	1 kg/kg TCE in paint or coating applied	Uncontrolled, based on engineering judgement	105
Trichloroethylene	79016		Application of adhesives	Entire process	40200701	1 kg/kg of TCE in adhesive applied	Uncontrolled, based on engineering judgement	105
Trichloroethylene	79016	2821	Production of polyvinyl chloride (PVC)	PVC suspension process using TCE as a reaction chain transfer agent	30101801	0.02 kg/kg of TCE consumed	Control status unspecified, based on aggregate emis. & consumption totals for PVC producers in 1978	105
Trichloroethylene	79016	2869	Perchloroethylene and trichloroethylene production	Oxychlorination process, drying column vent	301125	0.0075 g/kg PCE & trichlor produced	Emis. factor may include PCE emis., control status unspecified, based on data for one plant	104
Trichloroethylene	79016	2869	Perchloroethylene and trichloroethylene production	Oxychlorination process, distillation vent	301125	0.075 g/kg PCE & trichlor produced	Uncontrolled, based on data from one producer	104
Trichloroethylene	79016	2869	Ethylene dichloride production - direct chlorination	Absorption	30112502	0.01 g/kg produced	Control uncertain, based on tests and mass balance	95
Trichloroethylene	79016	2869	Perchloroethylene production by chlorination process	Neutralization and drying area vent	30112520	0.11 g/kg of PCE produced	Control status unspecified, based on data from one plant	104
Trichloroethylene	79016	2869	Perchloroethylene production by chlorination process	Distillation vent	30112521	0.056 g/kg of PCE produced	Control status unspecified, based on data from one plant	104

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Trichloroethylene	79016	2869	Trichloroethylene production by oxyhydrochlorination process	Absorption	30112530	8.5 g/kg produced	Control unclear, based on mass balance and testing	95
Trichloroethylene	79016	2869	Trichloroethylene production	Process - general	30112530	5.12×10^{-4} lb/lb produced	Derived from State air emission files	13
Trichloroethylene	79016	2869	Trichloroethylene production	Storage	407060	8.1×10^{-4} lb/lb produced	Derived from State air emission files	13
Trichloroethylene	79016	2896	Trichloroethylene production	Fugitive	30112534	7.5×10^{-4} lb/lb produced	Engineering estimate	13
Trichloroethylene	79016	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	1.9 mg/kg dry sludge	Average of six tests, scrubber	101
Trichloroethylene	79016	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	0.01 mg/kg dry sludge	One test, scrubber	101
Trichloroethylene	79016	4953	Wastewater treatment	POTW	50100701	0.62 Mg/Mg trichloroethylene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Trichloroethylene	79016	5169	Chemical distribution facilities	Storage and handling emissions	4	0.0006 Mg/Mg TCE handled	Stor. tanks uncont. & loading emis. pert. control., based on aggregate TCE emis. for dist. fac./1983	105
Trichloroethylene	79016	5169	Chemical distribution facilities	Storage and handling emissions	4	7.1 lbs/1000 gal TCE handled	Control status uncertain, based on information provided by one TCE supplier	2
Trichloroethylene	79016	806	Hospital waste incineration	Incinerator	315020	0.000239 lb/ton feed	Uncontrolled, test data	9
Trichloroethanol, 2,4,6-	88662	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	<35 ug/kg dry sludge	One test, scrubber	101
Trichloroethanol, 2,4,6-	88662	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<57 ug/kg dry sludge	One test, scrubber	101
Trichloropropane	7789891	2869	Propylene oxide production by chlorohydrination	Absorption	30120502	0.405 g/kg produced	Control unclear, based on mass balance and testing	95
Trichloropropane	7789891	2869	Epichlorohydrin production by hydrochlorination	Separation	30130501	0.50 g/kg produced	Control unclear, based on mass balance and testing	95
Trichlorotrifluoroethane	761131		Degreasing operations using trichlorotrifluoroethane	Cold cleaner		0.88 kg/kg fresh (virgin) solvent used	Uncontrolled, considers recycle, based on material balance	102
Trichlorotrifluoroethane	761131		Degreasing operations using trichlorotrifluoroethane	Cold cleaner		0.86 kg/kg fresh (virgin) solvent used	Contr = 0.7 freeboard ratio + drainage rack w/ 15 sec. drain time, considers recycle, mater.	102

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Trichlorotrifluoroethane	761131		Degreasing operations using trichlorotrifluoroethane	Open top vapor degreasers	40100207	0.93 kg/kg fresh (virgin) solvent used	balance Uncontrolled, considers recycle, based on material balance	76
Trichlorotrifluoroethane	761131		Degreasing operations using trichlorotrifluoroethane	Open top vapor degreasers	40100207	0.89 kg/kg fresh (virgin) solvent used	Controlled by refrig. freeboard chiller, considers recycle, based on material balance	76
Trichlorotrifluoroethane	761131		Degreasing operations using trichlorotrifluoroethane	Conveyorized vapor degreaser	40100298	0.96 kg/kg fresh (virgin) solvent used	Uncontrolled, considers recycle, based on material balance	76
Trichlorotrifluoroethane	761131		Degreasing operations using trichlorotrifluoroethane	Conveyorized vapor degreaser	40100298	0.91 kg/kg fresh (virgin) solvent used	Controlled by carbon adsorber or refrig. freeboard chiller, considers recycle, material balance	76
Trichlorotrifluoroethane	761131	7216	Dry cleaning, trichlorotrifluoroethane	Washer/dryer/still	40100156	0 kg/100 kg clothes cleaned	Based on typical refrigeration system at CFC drycleaning plant	97
Trichlorotrifluoroethane	761131	7216	Dry cleaning, trichlorotrifluoroethane	Cartridge filter disposal	40100106	1 kg/100 kg clothes cleaned	Based on tests and literature	97
Trichlorotrifluoroethane	761131	7216	Dry cleaning, trichlorotrifluoroethane	Still residue disposal	40100106	0.5 kg/100 kg clothes cleaned	Based on tests and literature	97
Trichlorotrifluoroethane	761131	7216	Dry cleaning, trichlorotrifluoroethane	Fugitives	40100106	1-3 kg/100 kg clothes cleaned	Based on tests and literature	97
Trichlorotrifluoroethane	761131	806	Hospital waste incineration	Incinerator	315020	0.000825 lb/ton feed	Uncontrolled, test data	9
Triethanol	67561	2869	Dimethyl terephthalate production by methanol esterification	Recycled and fresh methanol storage tank vents	301031	0.13 g/kg dimethyl terephthalate prod.	Uncontrolled, based on hypothetical plant operating 8760 h/yr and having 269 Gg/yr capacity	62
Triethanol	67561	2869	Dimethyl terephthalate production by methanol esterification	Recycled and fresh methanol storage tank vents	301031	0.013 g/kg dimethyl terephthalate prod.	Controlled by water absorber, based on hypothetical plant operating 8760 h/yr & having 269 Gg/yr cap	62
Triethylene glycol ethyl ether	112505	2869	Glycol ether production - methanol process	Vacuum system vent	30125302	0.015 g/kg glycol ether produced	Uncontrolled, approximation based on data from one plant	142
Trimethyl amine	75503		Fish processing plants	Fish scrap cookers - fresh	30201201	0.3 lb/ton fish	Uncontrolled	97
Trimethyl amine	75503		Fish processing plants	Fish scrap cookers - stale	30201202	3.5 lb/ton fish	Uncontrolled	97
Vanadium	7440622		Coal combustion, residential	Bituminous coal-fired boilers		71.8 pg/j	Uncontrolled, based on reported emissions data and engineering	54

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Vanadium	7440622		Coal combustion, residential	Anthracite coal-fired boilers		66.2 pg/J	Judgement	54
Vanadium	7440622		Coal combustion, residential	Lignite coal-fired boilers		34.4 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Vanadium	7440622		Oil combustion, residential	Distillate oil-fired boilers		10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Vanadium	7440622		Wood combustion, residential	Woodstove without baffle		0.015 g/Mg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Vanadium	7440622		Coal combustion, industrial	Pulverized boilers	102	33.0 pg/J	Controlled by multicyclones, based on reported emissions and engineering judgement	54
Vanadium	7440622		Coal combustion, industrial	Pulverized boilers	102	24.0 pg/J	Controlled by scrubber, based on reported emissions and engineering judgement	54
Vanadium	7440622		Coal combustion, industrial	Stoker boilers	102	24.9 pg/J	Controlled by multicyclones, based on reported emissions and engineering judgement	54
Vanadium	7440622		Coal combustion, industrial	Stoker boilers	102	58.1 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Vanadium	7440622		Oil combustion, industrial	Tangential furnaces	102	260 pg/J	Controlled by scrubber, based on reported emissions and engineering judgement	54
Vanadium	7440622		Oil combustion, industrial	Tangential furnaces	102	1300 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Vanadium	7440622		Oil combustion, industrial	Wall furnaces	102	260 pg/J	Controlled by scrubber, based on reported emissions and engineering judgement	54
Vanadium	7440622		Oil combustion, industrial	Wall furnaces	102	1300 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Vanadium	7440622		Coal combustion, commercial	Stoker boilers	103	58.1 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Vanadium	7440622		Oil combustion, commercial	Residual oil-fired tangential furnaces	103004	3660 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Vanadium	7440622		Oil combustion, commercial	Residual oil-fired wall furnaces	103004	3660 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Vanadium	7440622		Oil combustion, commercial	Distillate oil-fired tangential furnaces	103005	30.0 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Vanadium	7440622		Oil combustion, commercial	Distillate oil-fired wall furnaces	103005	30.0 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Vanadium	7440622	1094	Mining and processing of vanadium	Entire process	303024	25 lb/ton vanadium processed	Based on industry estimates (late 1960s/early 1970s), control status unspecified	56
Vanadium	7440622	226	Woven fabric finishing	Heat setting	330001	0.0021 mg/kg fabric	Uncontrolled, based on test data	52
Vanadium	7440622	2819	Catalyst manufacture	Entire process	301	20 lb/ton of vanadium processed	Control status unspecified, based on information obtained from industrial sources	56
Vanadium	7440622	33	Nonferrous alloy production	Entire process	3	12 lb/ton of vanadium processed	Control status unspecified, based on information obtained from two industrial sources	56
Vanadium	7440622	3312	Iron and steel production	Blast furnace	303008	1.4 lb/thousand tons pig iron produced	Control status/basis unclear	56
Vanadium	7440622	3312	Steel production	Basic oxygen furnace	303009	0.3 lb/thousand tons steel produced	97% emission control, based on particulate emission factor and V content	56
Vanadium	7440622	3312	Steel production	Open hearth furnace	30300901	5.1 lb/thousand tons steel produced	40% control efficiency, based on particulate emission factor and V content	56
Vanadium	7440622	3312	Steel production	Electric arc furnace	30300904	0.008 lb/ton of steel produced	78% emission control, based on particulate emission factor and V content	56
Vanadium	7440622	3313	Ferrovandium production	Electric furnaces	303	49 lb/ton vanadium processed	Uncontrolled, based on industry estimate (late 1960s/early 1970s)	56
Vanadium	7440622	3313	Ferrovandium production	Materials handling	303	12 lb/ton vanadium processed	Control status/basis unspecified	56

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Vanadium	7440622	4911	Coal combustion, utility	Anthracite coal-fired pulverized boilers	10100101	39.8 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Vanadium	7440622	4911	Coal combustion, utility	Anthracite coal-fired stoker boilers	10100102	24.9 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Vanadium	7440622	4911	Coal combustion, utility	Bituminous coal-fired stoker boilers	101002	24.9 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Vanadium	7440622	4911	Coal combustion, utility	Bituminous coal-fired pulverized dry bottom boilers	10100202	39.4 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Vanadium	7440622	4911	Coal combustion, utility	Bituminous coal-fired pulverized dry bottom boilers	10100202	62.8 pg/J	Controlled by scrubber, based on reported emissions data and engineering judgement	54
Vanadium	7440622	4911	Coal combustion, utility	Bituminous coal-fired pulverized dry bottom boilers	10100202	110 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Vanadium	7440622	4911	Coal combustion, utility	Bituminous coal-fired pulverized wet bottom boilers	10100202	32.3 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Vanadium	7440622	4911	Coal combustion, utility	Bituminous coal-fired cyclone boilers	10100203	30.1 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Vanadium	7440622	4911	Coal combustion, utility	Bituminous coal-fired cyclone boilers	10100203	30.0 pg/J	Controlled by scrubber, based on reported emissions data and engineering judgement	54
Vanadium	7440622	4911	Coal combustion, utility	Lignite coal-fired stoker boilers	101003	24.9 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Vanadium	7440622	4911	Coal combustion, utility	Lignite coal-fired pulverized dry bottom boilers	10100301	17.5 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Vanadium	7440622	4911	Coal combustion, utility	Lignite coal-fired pulverized wet bottom boilers	10100301	14.2 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Vanadium	7440622	4911	Coal combustion, utility	Lignite coal-fired cyclone boilers	10100303	233 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Vanadium	7440622	4911	Coal combustion, utility	Lignite coal-fired cyclone boilers	10100303	291 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Vanadium	7440622	4911	Oil combustion, utility	Residual oil-fired tangential furnaces	101004	303 pg/J	Controlled by ESP, based on reported emissions and engineering judgement	54
Vanadium	7440622	4911	Oil combustion, utility	Residual oil-fired tangential furnaces	101004	1516 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Vanadium	7440622	4911	Oil combustion, utility	Residual oil-fired well furnaces	101004	303 pg/J	Controlled by ESP, based on reported emissions and engineering judgement	54
Vanadium	7440622	4911	Oil combustion, utility	Residual oil-fired well furnaces	101004	1516 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Vanadium oxide	1314621	2865	Phthalic anhydride production - naphthalene process	Catalyst storage	301019	0.41 g catalyst/kg PA produced	Uncontrolled, emissions are the catalyst, not pure vanadium oxide	120
Vanadium oxide	1314621	2865	Phthalic anhydride production - naphthalene process	Catalyst storage	301019	0.01 g catalyst/kg PA produced	Controlled, emissions are the catalyst, not pure vanadium oxide	120
Vinyl chloride	75014	2821	Polyvinyl chloride production	Suspension process, entire plant	301018	35.5 g/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138
Vinyl chloride	75014	2821	Polyvinyl chloride production	Emulsion polymerization process	301018	60.1 g/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138
Vinyl chloride	75014	2821	Polyvinyl chloride production	Bulk polymerization process	301018	24.2 g/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138
Vinyl chloride	75014	2821	Polyvinyl chloride production	Solution polymerization process	301018	17.8 g/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138
Vinyl chloride	75014	2821	Polyvinyl chloride production	Reactor safety relief valve	301018	2.1 g/kg PVC	Engineering judgement, control status not certain	138

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Vinyl chloride	75014	2821	Polyvinyl chloride production	Reactor entry purge	301018	2.8 g/kg PVC	Engineering judgement	136
Vinyl chloride	75014	2821	Polyvinyl chloride production	Stripper jets	301018	1.8 g/kg PVC	Engineering judgement	136
Vinyl chloride	75014	2821	Polyvinyl chloride production	Dryer discharge	301018	1.4 g/kg PVC	Engineering judgement	136
Vinyl chloride	75014	2821	Polyvinyl chloride production	Storage silos	301018	0.7 g/kg PVC	Engineering judgement	136
Vinyl chloride	75014	2821	Polyvinyl chloride production	Primary control	30101801	4.8 kg/Mg PVC product	Rough estimate of uncontrolled emissions	27
Vinyl chloride	75014	2821	Polyvinyl chloride production	Primary control	30101801	0.01 kg/Mg PVC product	Rough estimate of actual emissions, control level at 23 existing plants unknown	27
Vinyl chloride	75014	2821	Polyvinyl chloride production	Relief valves	30101801	2.0 kg/Mg PVC product	Rough estimate for uncontrolled emissions	27
Vinyl chloride	75014	2821	Polyvinyl chloride production	Relief valves	30101801	0.0702 kg/Mg PVC product	For actual emissions, control level unknown	27
Vinyl chloride	75014	2821	Polyvinyl chloride production	Combined sources after resin stripping	30101801	12.5 kg/Mg PVC product	Rough estimate for uncontrolled emissions	27
Vinyl chloride	75014	2821	Polyvinyl chloride production	Combined sources after resin stripping	30101801	0.2 kg/Mg PVC product	Rough estimate for actual emissions, control level at 23 existing plants unknown	27
Vinyl chloride	75014	2821	Polyvinyl chloride production	Fugitives	30101801	15.3 kg/Mg PVC product	Rough estimate for uncontrolled emissions	27
Vinyl chloride	75014	2821	Polyvinyl chloride production	Fugitives	30101801	0.38 kg/Mg PVC product	Rough estimate for actual emissions, control level at 23 existing plants unknown	27
Vinyl chloride	75014	2821	Polyvinyl chloride production	Reactor opening loss	30101801	4.6 kg/Mg PVC product	Rough estimate for uncontrolled emissions	27
Vinyl chloride	75014	2821	Polyvinyl chloride production	Reactor opening loss	30101801	0.02 kg/Mg PVC product	Rough estimate for actual emissions, control level at 23 existing plants unknown	27
Vinyl chloride	75014	2821	Suspension polyvinyl chloride production	Fugitives	30101801	1.50 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Suspension polyvinyl chloride production	Reactor opening loss	30101801	0.14 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Vinyl chloride	75014	2821	Suspension polyvinyl chloride production	Stripper loss	30101801	0.32 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Suspension polyvinyl chloride production	Monomer recovery	30101801	0.48 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Suspension polyvinyl chloride production	Slurry blend tank	30101801	0.42 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Suspension polyvinyl chloride production	Centrifuge vent	30101801	0.13 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Suspension polyvinyl chloride production	Reactor safety valve vents	30101801	0.20 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Suspension polyvinyl chloride production	Process water	30101801	0.025 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Suspension polyvinyl chloride production	Area emissions - dryer, silo, bagger, loading	30101801	0.70 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Dispersion polyvinyl chloride production	Fugitives	30101801	1.13 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Dispersion polyvinyl chloride production	Reactor opening loss	30101801	0.15 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Dispersion polyvinyl chloride production	Stripper loss	30101801	1.23 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Dispersion polyvinyl chloride production	Monomer recovery vent	30101801	0.50 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Dispersion polyvinyl chloride production	Slurry blend tank	30101801	0.34 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Dispersion polyvinyl chloride production	Area emissions - dryer, silo, bagger, loading	30101801	2.41 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Dispersion polyvinyl chloride production	Reactor safety valve vents	30101801	0.22 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Dispersion polyvinyl chloride production	Process water	30101801	0.025 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Bulk polyvinyl chloride polymerization	Fugitives	30101801	0.48 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Vinyl chloride	75014	2821	Bulk polyvinyl chloride polymerization	Reactor opening loss	30101801	0.08 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Bulk polyvinyl chloride polymerization	Monomer recovery vent	30101801	1.50 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Bulk polyvinyl chloride polymerization	Reactor safety valve vents	30101801	0.10 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Bulk polyvinyl chloride polymerization	Area emissions - silo, bagger, loading	30101801	0.23 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Bulk polyvinyl chloride polymerization	Process water	30101801	0.011 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Solvent polyvinyl chloride polymerization	Fugitives	30101801	0.03 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Solvent polyvinyl chloride polymerization	Reactor opening loss	30101801	0.50 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Solvent polyvinyl chloride polymerization	Stripper loss	30101801	0.05 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Solvent polyvinyl chloride polymerization	Monomer recovery vent	30101801	0.31 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Solvent polyvinyl chloride polymerization	Area sources - silo, dryer, bagger, loading	30101801	0.83 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Solvent polyvinyl chloride polymerization	Reactor safety valve vents	30101801	0.06 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Solvent polyvinyl chloride polymerization	Process water	30101801	0.002 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2821	Polyvinyl chloride production	Monomer recovery condenser vent	30101808	5.0 g/kg PVC	Engineering judgement	138
Vinyl chloride	75014	2821	Polyvinyl chloride production	Slurry blend tank vents	30101808	4.4 g/kg PVC	Engineering judgement	138
Vinyl chloride	75014	2821	Polyvinyl chloride production	Centrifuge vents	30101808	1.3 g/kg PVC	Engineering judgement	138
Vinyl chloride	75014	2869	Ethylene dichloride/vinyl chloride production	Relief valves	301125	0.0062 kg/Mg EDC-VC product	Control unknown for actual emissions	27
Vinyl chloride	75014	2869	Ethylene dichloride/vinyl chloride production	Primary control	301125	2.9 kg/Mg EDC-VC product	Uncontrolled, rough estimate	27

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Vinyl chloride	75014	2869	Ethylene dichloride/vinyl chloride production	Primary control	301125	0.01 kg/Mg EDC-VC product	Rough estimate, actual emissions, degree of control at 9 existing plants unknown	27
Vinyl chloride	75014	2869	Ethylene dichloride/vinyl chloride production	Fugitives	301125	1.2 kg/Mg EDC-VC produced	Uncontrolled, rough estimate	27
Vinyl chloride	75014	2869	Ethylene dichloride/vinyl chloride production	Fugitives	301125	0.032 kg/Mg EDC-VC produced	Rough estimate of actual emissions, control level at 9 existing plants unknown	27
Vinyl chloride	75014	2869	Ethylene dichloride/vinyl chloride production	Process water	301125	0.0007 kg VC monomer/100 kg VCM prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2869	Perchloroethylene and trichloroethylene production	Oxychlorination process, drying column vent	301125	0.52 g/kg of PCE and TCE produced	Uncontrolled, based on data from one producer	70
Vinyl chloride	75014	2869	Ethylene dichloride/vinyl chloride production	Oxychlorination vent	30112501	0.36 kg/Mg EDC-VC product	Uncontrolled, rough estimate	27
Vinyl chloride	75014	2869	Ethylene dichloride/vinyl chloride production	Oxychlorination vent	30112501	0.079 kg/Mg EDC-VC produced	Rough estimate, actual emissions, control level at 9 existing plants unknown	27
Vinyl chloride	75014	2869	Ethylene dichloride/vinyl chloride production	Oxychlorination proc.	30112501	0.0364 kg VC monomer/100 kg VCM prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2869	Ethylene dichloride production - oxyhydrochlorination	Absorption	30112501	0.01 g/kg produced	Control unclear, based on mass balance and testing	95
Vinyl chloride	75014	2869	Ethylene dichloride production - oxyhydrochlorination	Separation	30112501	0.012 g/kg produced	Control unclear, based on mass balance and testing	95
Vinyl chloride	75014	2869	Ethylene dichloride/vinyl chloride production	Fugitives	30112509	0.1215 kg VC monomer/100 kg VCM produced	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2869	Methyl chloroform production by hydrochlorination	Separation	30112525	0.5 g/kg produced	Control uncertain, based on mass balance and tests	95
Vinyl chloride	75014	2869	Methyl chloroform production from vinyl chloride	Distillation vents	30112528	0.007 g/kg methyl chloroform produced	Uncontrolled, based on hypothetical plant with 136,000 kg/yr production capacity	70
Vinyl chloride	75014	2869	Methyl chloroform production from vinyl chloride	Distillation vents	30112528	0.0001 g/kg methyl chloroform produced	Controlled by incinerator, based on hypothetical plant with 136,000	70

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Vinyl chloride	75014	2869	Ethylene dichloride/vinyl chloride production	EDC finishing column	30112544	0.05 kg VC monomer/100 kg VCM prod.	Mg/yr production capacity Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2869	Ethylene dichloride/vinyl chloride production	VCM finishing column	30112545	0.24 kg VC monomer/100 kg VCM prod.	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	2869	Ethylene dichloride/vinyl chloride production	Fugitives	30112550	0.1215 kg VC monomer/100 kg VCM produced	Industry average, control level at existing plants unknown, variable	26
Vinyl chloride	75014	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	4.1 mg/kg dry sludge	Average of four tests, scrubber	101
Vinyl chloride	75014	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	<0.01 mg/kg dry sludge	One test, scrubber	101
Vinyl chloride	75014	4953	Wastewater treatment	POTW	50100701	0.81 Mg/Mg vinyl chloride in influent	Based on emis. modeling for hypoth. POTW. represents average POTW that treats industrial wastewater	59
Vinylidene chloride	75354	2821	Polyvinyl chloride production	Suspension process, entire plant	301018	9 x 10E-5 g/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138
Vinylidene chloride	75354	2824	Polymerization of vinylidene chloride	Reactor	301125	3.5 kg/Mg polymer produced	Controlled	165
Vinylidene chloride	75354	2824	Polymerization of vinylidene chloride	Monomer recovery	301125	0.33 kg/Mg polymer produced	Controlled	165
Vinylidene chloride	75354	2824	Polymerization of vinylidene chloride	Unloading/storage	301125	2.1 kg/Mg polymer produced	Controlled	165
Vinylidene chloride	75354	2824	Polymerization of vinylidene chloride	Process fugitive	301125	2.8-11 kg/Mg polymer produced	Controlled	165
Vinylidene chloride	75354	2824	Vinylidene chloride copolymer fabric. (cellophane coating)	Includes poly. stor. vents, poly. mix. & blend. vents, & finis. poly. dry.	301125	10-120 g/Mg copolymer produced	Based on counts of pumps, valves, and compressors and the average VOC wt. fraction in the streams	165
Vinylidene chloride	75354	2824	Vinylidene chloride copolymer fabric. (for latex coating)	Includes poly. stor. vents, poly. mix. & blend. vents, & finis. poly. dry.	301125	50-1500 g/Mg copolymer produced	Based on counts of pumps, valves, and compressors and the average VOC wt. fraction in the streams	165
Vinylidene chloride	75354	2824	Vinylidene chloride copolymer fabric. (for extrusion)	Includes poly. stor. vents, poly. mix. & blend. vents, & finis. poly. dry.	301125	2-25 g/Mg copolymer produced	Based on counts of pumps, valves, and compressors and the average VOC wt. fraction in the streams	165

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Vinylidene chloride	75354	2824	Wastewater treatment	Wastewater	301125	0.98 g/g VOC in wastewater feed	Based on 98% evaporation rate	165
Vinylidene chloride	75354	2869	Vinylidene chloride production	Storage and handling	301125	0.056 kg/Mg VOC produced	Controlled, unknown (typical controls are pressurized tank, refrigerated condenser)	165
Vinylidene chloride	75354	2869	Perchloroethylene and trichloroethylene production	Reactor vent (oxygenation process)	301125	3.8 kg/Mg PCE and TCE produced	Uncontrolled	165
Vinylidene chloride	75354	2869	Perchloroethylene and trichloroethylene production	Reactor vent (oxygenation process)	301125	<0.076 kg/Mg PCE and TCE produced	Thermal oxidation	165
Vinylidene chloride	75354	2869	Perchloroethylene and trichloroethylene production	Drying column vent (oxygenation process)	301125	0.4 kg/Mg PCE and TCE	Uncontrolled	165
Vinylidene chloride	75354	2869	Perchloroethylene and trichloroethylene production	Drying column vent (oxygenation process)	301125	<0.008 kg/Mg PCE and TCE	Thermal oxidation	165
Vinylidene chloride	75354	2869	Perchloroethylene and carbon tetrachloride production	Hydrocarbon chlorination process, hex waste handling	301125	0.013 kg/Mg PCE & carbon tet. produced	Uncontrolled, based on hypothetical plant producing 50,000 Mg/yr PCE and 30,000 Mg/yr CT	70
Vinylidene chloride	75354	2869	Perchloroethylene and carbon tetrachloride production	Hydrocarbon chlorination process, hex waste handling	301125	0.00013 kg/Mg PCE & carbon tet. produced	Vapor-bal. syst./carb. adsor. (99% eff), hypothetical plant prod. 50,000 Mg/yr PCE & 30,000 Mg/yr CT	70
Vinylidene chloride	75354	2869	Ethylene dichloride production - oxyhydrochlorination	Separation	30112501	0.00009 g/kg produced	Control unclear, based on mass balance and testing	95
Vinylidene chloride	75354	2869	Perchloroethylene and trichloroethylene production	Distillation vents (oxygenation process)	30112521	0.098 kg/Mg PCE and TCE	Uncontrolled	165
Vinylidene chloride	75354	2869	Perchloroethylene and trichloroethylene production	Distillation vents (oxygenation process)	30112521	0.020 kg/Mg PCE and TCE	Aqueous scrubber	165
Vinylidene chloride	75354	2869	Perchloroethylene and trichloroethylene production	Distillation vents (chlorination process)	30112531	0.106 kg/Mg PCE and TCE produced	Uncontrolled	165
Vinylidene chloride	75354	2869	Perchloroethylene and trichloroethylene production	Distillation vents (chlorination process)	30112531	0.021 kg/Mg PCE and TCE produced	Refrigerated condenser (80%)	165
Vinylidene chloride	75354	2869	Perchloroethylene and trichloroethylene production	Neutralization and drying vent (chlorination process)	30112532	2.5 kg/Mg PCE and TCE produced	Uncontrolled, based on published data from indiv. plants and general processing techniques	165

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Vinylidene chloride	75354	2869	Perchloroethylene and trichloroethylene production	Neutralization and drying vent (chlorination process)	30112532	0.50 kg/Mg PCE and TCE produced	Refrigerated condenser (80%)	165
Vinylidene chloride	75354	2869	Vinylidene chloride production	Reactor vent	30112552	6.2 kg/Mg VOC produced	Uncontrolled, emis. fac. based on published data from indiv. plants & general processing techniques	165
Vinylidene chloride	75354	2869	Vinylidene chloride production	Reactor vent	30112552	<0.12 kg/Mg VOC produced	Controlled (incinerator), 99% reduction	165
Vinylidene chloride	75354	2869	Vinylidene chloride production	Distillation vents	30112553	0.7 kg/Mg VOC produced	Uncontrolled	165
Vinylidene chloride	75354	2869	Vinylidene chloride production	Distillation vents	30112553	0.070 kg/Mg VOC produced	Controlled, aqueous scrubber or refrigerated condenser (90% reduction)	165
Vinylidene chloride	75354	2869	Vinylidene chloride production	Process fugitive emissions	30112555	0.96 kg/hr	Uncontrolled (Independent of plant capacity)	165
Vinylidene chloride	75354	2869	Vinylidene chloride production	Process fugitive emissions	30112555	0.76 kg/hr	Quarterly inspection and maintenance (21%)	165
Vinylidene chloride	75354	2869	Vinylidene chloride production	Process fugitive emissions	30112555	0.70 kg/hr	Monthly inspection and maintenance (29%)	165
Vinylidene chloride	75354	2869	Vinylidene chloride production	Process fugitive emissions	30112555	0.12 kg/hr	Monthly inspection & maintenance, double seals on pumps & rupture disks on relief valves, 80% reduc.	165
Xylene	1330207		Use of automotive products	End use		1 kg/kg xylene consumed	Engineering judgement	77
Xylene	1330207		Gasoline use	Evaporation from automobiles		5.66 x 10E-6 lb/vehicle mile traveled	Engineering estimate, based on AP-42 VOC emission factor	13
Xylene	1330207		Gasoline use	Automobile exhaust		2.39 x 10E-4 lb/vehicle mile traveled	Engineering estimate, based on AP-42 VOC emission factor	13
Xylene	1330207		Gasoline use	Gasoline evaporation from automobiles	288888	0.038 g/gallon gasoline consumed	Engineering judgement	13
Xylene	1330207		Gasoline use	Automobile exhaust	288888	1.6 g/gallon gasoline consumed	Engineering judgement	13
Xylene	1330207		Application of adhesives	End use	308900	1 kg/kg xylene consumed	Engineering judgement	77
Xylene	1330207		Solvent based paints	Coating application	40200101	0.87 lb/lb xylene used	Estimated	13
Xylene	1330207		Thinning solvent	Xylene	40200924	1.0 lb/lb xylene used	Engineering estimate, assume all xylene used is eventually released	13

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Xylene	1330207	1721	Application of paints and coatings	End use	40288501	1 kg/kg xylene consumed	to the atmosphere	77
Xylene	1330207	28	Paint and coating manufacture	Xylene solvent		20.2 kg/Mg xylene consumed	Engineering judgement	67
Xylene	1330207	2865	Phthalic anhydride production - xylene process	Storage tanks	301019	0.002 g/kg PA produced	Controlled, test data and engineering judgement	120
Xylene	1330207	2865	Phthalic anhydride production - xylene process	Storage tanks	301019	0.20 g/kg PA produced	Uncontrolled, based on test data and engineering judgement	120
Xylene	1330207	2865	Maleic anhydride production	Process emissions	301100	11.6 kg/Mg product	Engineering judgement, see EPA Source Assessment on Maleic Anhydride	67
Xylene	1330207	2865	Maleic anhydride production	Storage emissions	301100	0.075 kg/Mg product	Engineering judgement, see EPA Source Assessment on Maleic Anhydride	67
Xylene	1330207	2865	Maleic anhydride production	Fugitive emissions	301100	0.4 kg/Mg product	Engineering judgement, see EPA Source Assessment on Maleic Anhydride	67
Xylene	1330207	2865	Ethylbenzene production	Process - general	30116901	1.0 x 10E-4 lb/lb xylene used	Estimated	13
Xylene	1330207	2865	Ethylbenzene production	Fugitive	30116980	5.0 x 10E-5 lb/lb xylene used	Estimated	13
Xylene	1330207	2865	Ethylbenzene production	Storage	407036	5.0 x 10E-5 lb/lb xylene used	Estimated	13
Xylene	1330207	2869	Dimethyl terephthalate production	Process emissions	30103101	6.8 kg/Mg product	Based on site visit data, Hydrosience, Inc.	67
Xylene	1330207	2869	Dimethyl terephthalate production	Storage emissions	30103101	0.14 kg/Mg product	Based on site visit data, Hydrosience, Inc.	67
Xylene	1330207	2869	Dimethyl terephthalate production	Fugitive emissions	30103101	0.14 kg/Mg product	Based on site visit data, Hydrosience, Inc.	67
Xylene	1330207	2869	Crude terephthalic acid production	Reactor vent	30103102	6 g/kg crude TPA produced	Uncontrolled	62
Xylene	1330207	2869	Xylene isomer production: o-xylene	Storage emissions	301258	0.08 kg/Mg o-xylene produced	From Texas Air Control Board Emissions Survey	13
Xylene	1330207	2869	Xylene isomer production: o-xylene	Fugitive emissions	301258	0.38 kg/Mg o-xylene produced	From Texas Air Control Board Emissions Survey	13

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Xylene	1330207	2869	Xylene isomer production: m-xylene	Process emissions	301258	1.58 kg/Mg m-xylene produced	Engineering judgement, Hydroscience	13
Xylene	1330207	2869	Xylene isomer production: m-xylene	Storage emissions	301258	0.12 kg/Mg m-xylene produced	Engineering judgement, Hydroscience	13
Xylene	1330207	2869	Xylene isomer production: m-xylene	Fugitive emissions	301258	0.30 kg/Mg m-xylene produced	Engineering judgement, Hydroscience	13
Xylene	1330207	2869	Xylene isomer production: o-xylene	Process emissions	301258	2.09 kg/Mg o-xylene produced	Based on inventory by Texas Air Control Board	13
Xylene	1330207	2869	Xylene isomer production: p-xylene	Process emissions	30125810	1.14 kg/Mg p-xylene produced	Based on inventory by Texas Air Control Board	13
Xylene	1330207	2869	Xylene isomer production: p-xylene	Storage emissions	30125810	0.19 kg/Mg p-xylene produced	Based on inventory by Texas Air Control Board	13
Xylene	1330207	2869	Xylene isomer production: p-xylene	Fugitive emissions	30125810	0.24 kg/Mg p-xylene produced	Based on inventory by Texas Air Control Board	13
Xylene	1330207	2869	Mixed xylene production, toluene disproportionation	Fugitive emissions	30125815	0.05 kg/Mg xylene produced	Based on engineering judgement, Hydroscience	13
Xylene	1330207	2869	Mixed xylene production, coal-derived	Process emissions	30125815	0.50 kg/Mg xylene produced	Based on engineering judgement, Hydroscience	13
Xylene	1330207	2869	Mixed xylene production, coal-derived	Storage emissions	30125815	0.60 kg/Mg xylene produced	Based on engineering judgement, Hydroscience	13
Xylene	1330207	2869	Mixed xylene production, coal-derived	Fugitive emissions	30125815	0.15 kg/Mg xylene produced	Based on engineering judgement, Hydroscience	13
Xylene	1330207	2869	Mixed xylene production, catalytic reformate	Process emissions	30125815	0.03 kg/Mg xylene produced	Based on inventory conducted by Texas Air Control Board	13
Xylene	1330207	2869	Mixed xylene production, catalytic reformate	Storage emissions	30125815	0.06 kg/Mg xylene produced	Based on inventory conducted by Texas Air Control Board	13
Xylene	1330207	2869	Mixed xylene production, catalytic reformate	Fugitive emissions	30125815	0.03 kg/Mg xylene produced	Based on inventory conducted by Texas Air Control Board	13
Xylene	1330207	2869	Mixed xylene production, pyrolysis gasoline	Process emissions	30125815	0.07 kg/Mg xylene produced	Site visit data	13
Xylene	1330207	2869	Mixed xylene production, pyrolysis gasoline	Storage emissions	30125815	0.30 kg/Mg xylene produced	Site visit data	13

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Xylene	1330207	2869	Mixed xylene production, pyrolysis gasoline	Fugitive emissions	30125815	0.03 kg/Mg xylene produced	Site visit data	13
Xylene	1330207	2869	Mixed xylene production, toluene disproportionation	Process emissions	30125815	0.05 kg/Mg xylene produced	Based on engineering judgement, Hydroscience, Inc.	13
Xylene	1330207	2869	Mixed xylene production, toluene disproportionation	Storage emissions	30125815	0.10 kg/Mg xylene produced	Based on engineering judgement, Hydroscience, Inc.	13
Xylene	1330207	2911	Petroleum refinery with cracking/reforming	Fugitives	306	31.0 lb/ton total HC	Assumes fugitives are 1.5% xylene	92
Xylene	1330207	2911	Petroleum refinery without cracking/reforming	Fugitives	306	3.1 lb/ton TMC	Assumes xylene is 0.155% of TMC	92
Xylene	1330207	2911	Petroleum refinery	Entire process	3060080	3 kg/1000 barrels	With catalytic reforming, 50% storage and 50% fugitive + process emissions assumed	67
Xylene	1330207	2911	Petroleum refinery	Entire process	3060080	1.5 kg/1000 barrels	Without catalytic reforming, 50% storage and 50% fugitive + process emissions assumed	67
Xylene	1330207	4581	Jet engine exhaust	Engine	2	282 lb/ton total hydrocarbons emitted	Xylene assumed to be 14.1% of HC emissions	92
Xylene	1330207	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	4.04 mg/kg dry sludge	One test, scrubber	101
Xylene	1330207	4953	Wastewater treatment	POTW	50100701	0.55 Mg/Mg total xylenes in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Xylene	1330207	4953	Petroleum refinery sludge	Land treatment	50300820	1.11 kg/hectare-hr	Emissions measured within 1 hr. of sludge application to landfill	12
Xylene	1330207	5191	Application of pesticides	End use		1 kg/kg xylene consumed	Engineering judgement	77
Xylene	1330207	5541	Vehicle refueling	Vapor loss	40600301	0.022 g/gal of gas pumped	For p- and m-xylene	4
Xylene	1330207	5541	Vehicle refueling	Vapor loss	40600301	0.016 g/gal of gas pumped	Listed as emission rate for o-xylene and/or unknown C9 paraffins	4
Xylene	1330207	5541	Gasoline marketing activities	Service stations	40600401	1.47 x 10E-5 lb/lb gasoline	Engineering estimate, based on AP-42 VOC emission factor	13

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Xylene, m-	108383		Gasoline use	Evaporation from automobiles		3.11 x 10E-6 lb/vehicle mile traveled	Engineering estimate, based on AP-42 VOC emission factor	13
Xylene, m-	108383		Gasoline use	Automobile exhaust		9.17 x 10E-5 lb/vehicle mile traveled	Engineering estimate, based on AP-42 VOC emission factor	13
Xylene, m-	108383	2869	Isophthalic acid production	Process - general	301	8.5 x 10E-4 lb/lb xylene used	Estimated	13
Xylene, m-	108383	2869	Isophthalic acid production	Storage	301	5.0 x 10E-5 lb/lb xylene used	Estimated	13
Xylene, m-	108383	2869	Isophthalic acid production	Fugitive	301	1.0 x 10E-4 lb/lb xylene used	Estimated	13
Xylene, m-	108383	5541	Gasoline marketing activities	Service stations	40600401	8.05 x 10E-6 lb/lb gasoline	Engineering estimate, based on AP-42 VOC emission factor	13
Xylene, o-	95-76		Gasoline use	Evaporation from automobiles		1.28 x 10E-6 lb/vehicle mile traveled	Engineering estimate, based on AP-42 VOC emission factor	13
Xylene, o-	95-76		Gasoline use	Automobile exhaust		7.76 x 10E-5 lb/vehicle mile traveled	Engineering estimate, based on AP-42 VOC emission factor	13
Xylene, o-	95-76	2865	Phthalic anhydride production	Storage	301019	2.0 x 10E-5 lb/lb xylene used	Estimated	13
Xylene, o-	95-76	2865	Phthalic anhydride production	Fugitive		4.0 x 10E-5 lb/lb xylene used	Estimated	13
Xylene, o-	95-76	2865	Phthalic anhydride production	Process - general	30101901	1.4 x 10E-4 lb/lb xylene used	Estimated	13
Xylene, o-	95-76	5541	Gasoline marketing activities	Service stations	40600401	3.31 x 10E-6 lb/lb gasoline	Engineering estimate, based on AP-42 VOC emission factor	13
Xylene, p-	106423		Gasoline use	Evaporation from automobiles		1.28 x 10E-6 lb/vehicle mile traveled	Engineering estimate, based on AP-42 VOC emission factor	13
Xylene, p-	106423		Gasoline use	Automobile exhaust		7.06 x 10E-5 lb/vehicle mile traveled	Engineering estimate, based on AP-42 VOC emission factor	13
Xylene, p-	106423	2869	Terephthalic acid production	Storage	301	1.1 x 10E-4 lb/lb xylene used	Based on site visit data	13
Xylene, p-	106423	2869	Crude terephthalic acid production by air oxidation process	p-Xylene storage tank vents	301031	0.11 g/kg crude terephthalic acid prod.	Uncontrolled, filling emis. only, hypothetical plant operating 8760 h/yr & having 230 Gg/yr cap.	62
Xylene, p-	106423	2869	Terephthalic acid production	Fugitive	301031	7.0 x 10E-5 lb/lb xylene used	Based on site visit data	13
Xylene, p-	106423	2869	Crude terephthalic acid production by air oxidation process	Reactor vent	30103102	6 g/kg crude terephthalic acid produced	Uncontrolled, based on hypothetical plant operating 8760 h/yr and having 230 Gg/yr capacity	62

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SEC	EMISSION FACTOR	NOTES	REFERENCE
Xylene, p-	106423	2869	Crude terephthalic acid production by air oxidation process	Reactor vent	30103102	0.18 g/kg crude terephthalic acid prod.	Contr = carb. adsorb. (97% emis. reduction), hypothetical plant oper. 8760 h/yr & 230 Gg/yr	62
Xylene, p-	106423	2869	Terephthalic acid production	Process - general	30103107	2.54 x 10E-3 lb/lb xylene used	Based on site visit data	13
Xylene, p-	106423	5541	Gasoline marketing activities	Service stations	40600401	3.31 x 10E-6 lb/lb gasoline	Engineering estimate, based on AP-42 VOC emission factor	13
Zinc	7440666		Waste oil combustion	Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	0.750 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgment, variable	55
Zinc	7440666	226	Woven fabric finishing	Tenter frames - resin finishing	330001	0.63 mg/kg fabric	Uncontrolled, average of four tests	52
Zinc	7440666	226	Woven fabric finishing	Thermoset dyeing	330001	0.099 mg/kg fabric	Uncontrolled, average of three tests	52
Zinc	7440666	226	Woven fabric finishing	Heat setting	330001	0.074 mg/kg fabric	Uncontrolled, based on test data	52
Zinc	7440666	226	Woven fabric finishing	Curing oven - resin finish	330001	0.76 mg/kg fabric	Uncontrolled, average of three tests	52
Zinc	7440666	33	Primary and secondary zinc oxide production	Entire process	3	60 lb/ton produced	Ranges from 20 to 170 lb Zn/ton product, based on industry data from 1960s	159
Zinc	7440666	3312	Steel production	Open hearth furnace	303009	1.3 lb/ton steel produced	Based on controlled particulate emis. factor of 10.2 lb/ton steel produced, w/ zinc content of 12.5%	66
Zinc	7440666	3312	Steel production	Basic oxygen furnace	303009	0.3 lb/ton steel produced	Based on controlled particulate emis. factor of 14 lb/ton steel produced & zinc content of 2.2%	66
Zinc	7440666	3312	Steel production	Electric arc furnace	303009	0.7 lb/ton steel produced	Based on controlled particulate emis. factor of 2.5 lb/ton steel prod. & part. zinc content of 29.6%	66
Zinc	7440666	3312	Steel production	Zinc galvanizing kettles	30300956	0.0018 Mg/Mg zinc processed	Based on emissions data obtained from galvanizing plants in the late 1960s	66
Zinc	7440666	3339	Primary zinc production by electrolytic process	Entire process	303030	0.2 kg/Mg production capacity	Largely controlled, based on average ratio of emissions to capacity for three plants	66

POLLUTANT	CAS NUMBER	SIC CODE	INDUSTRIAL PROCESS	EMISSION SOURCE	SCC	EMISSION FACTOR	NOTES	REFERENCE
Zinc	7440666	3341	Secondary zinc production	Entire process	304008	20 lb/ton produced	Based on industry data from 1960s, ranges from 0.01 to 124 lb/ton	159
Zinc	7440666	3349	Die-casting production using zinc-based alloys	Entire process	304050	10 lb/ton of zinc processed	Based on information obtained from die-casting companies in 1969	66
Zinc	7440666	4953	Municipal waste combustion	Incinerator stack	501001	0.5 kg/Mg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, based on material balance for model incinerator	98
Zinc	7440666	4953	Sewage sludge incineration	Fluidized-bed furnace	50100506	1.92 mg/kg dry sludge	One test, scrubber	101
Zinc	7440666	4953	Sewage sludge incineration	Multiple hearth furnace	50100506	25.4 mg/kg dry sludge	Average of 11 tests, scrubber	101
Zinc oxide	1314132	33	Primary zinc oxide production	Entire process	3	0.004 Mg/Mg production capacity	Controlled, based on ratio of emissions to capacity for one plant	66
Zinc oxide	1314132	3341	Secondary zinc smelting	Kettle sweating	30400814	0.28 lb/ton product	Based on 0.56 lb/t x 50% wt. Zn in PM, fugitive	97

SECTION 4. EMISSION FACTORS FOR SOURCES OF TOXIC AIR POLLUTANTS*

* Units of emission factors associated with SCC's may not correspond to standard SCC units used in the NEDS.

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
1,3-Diisocyanate production	2869	Plantwide		Chloroform	67663	0.25 g/s	Carbon adsorption	160
1,4-Butanediol production	2869	Process	301250	Formaldehyde	50000	<0.74 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or the types of control involved	106
1,4-Butanediol production	2869	Process	301250	Formaldehyde	50000	0 kg/Mg of 37% formaldehyde used	Controlled by flare, no information was available on the basis of this estimate	106
1,4-Butanediol production	2869	Formaldehyde storage	301250	Formaldehyde	50000	0.005-0.2 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or the types of controls involved	106
Acetaldehyde production	2869	Off-air vent	30112013	Acetaldehyde	75070	4.3 lb/1000 lb acetaldehyde	Controlled, high pressure scrubber, data from one plant	143
Acetaldehyde production	2869	Off-gas vent	30112014	Chloroform	67663	0.4 lb/1000 lb acetaldehyde	Controlled, low pressure scrubber, data from one plant	143
Acetaldehyde production	2869	Off-gas vent	30112014	Methyl chloride	74873	1.1 lb/1000 lb acetaldehyde	Controlled, low pressure scrubber, data from one plant	143
Acetaldehyde production	2869	Off-gas vent	30112014	Ethyl chloride	75003	1.1 lb/1000 lb acetaldehyde	Controlled, low pressure scrubber, data from one plant	143
Acetaldehyde production	2869	Off-gas vent	30112014	Methylene chloride	75092	0.1 lb/1000 lb acetaldehyde	Controlled, low pressure scrubber, data from one plant	143
Acetic anhydride production	2869	Reaction by-product gas	30113302	Propadiene	463490	1.9 g/kg acetic acid produced	Based on data from three plants	152
Acetic anhydride production	2869	Reaction by-product gas	30113302	Ethylene	74851	1.5 g/kg acetic acid produced	Based on data from three plants	152
Acetone/phenol manufacture from cumene	2865	Cumene peroxidation vent	30102002	Dimethyl styrene		0.00005 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cumene peroxidation vent	30102002	Hydroxy-2-phenyl propane		0.0009 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cumene peroxidation vent	30102002	Methyl styrene		0.0001 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cumene peroxidation vent	30102002	Ethyl benzene	100414	0.00042 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Acetone/phenol manufacture from cumene	2865	Cumene peroxidation vent	30102002	Butylbenzene	104518	0.0022 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cumene peroxidation vent	30102002	Butenal	4170303	0.0055 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cumene peroxidation vent	30102002	Formaldehyde	50000	0.001 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cumene peroxidation vent	30102002	Acetone	67641	0.60 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cumene peroxidation vent	30102002	Propanol	71238	0.011 g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cumene peroxidation vent	30102002	Acetaldehyde	75070	0.0021 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cumene peroxidation vent	30102002	Methyl ethyl ketone	78933	0.05 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cumene peroxidation vent	30102002	Naphthalene	91203	0.0001 g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cumene peroxidation vent	30102002	Acetophenone	98662	0.0086 g/kg phenol	Controlled (not specified), based on sampling, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cleavage section vents (combined)	30120211	Hydroxy-2-phenyl propane		3.4 x 10E-6 g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cleavage section vents (combined)	30120211	Ethyl benzene	100414	5.0 x 10E-7 g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cleavage section vents (combined)	30120211	Butenal	4170303	8.5 x 10E-8 g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Acetone/phenol manufacture from cumene	2865	Cleavage section vents (combined)	30120211	Formaldehyde	50000	2.6×10^{-7} g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cleavage section vents (combined)	30120211	Isopentanal	590663	8.5×10^{-7} g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cleavage section vents (combined)	30120211	Acetone	67641	6×10^{-6} g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cleavage section vents (combined)	30120211	Methyl ethyl ketone	78933	1.8×10^{-5} g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Cleavage section vents (combined)	30120211	Acetophenone	98862	4.4×10^{-6} g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Storage tank vents	407084	Methyl styrene		0.002 g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Acetone/phenol manufacture from cumene	2865	Storage tank vents	407084	Acetone	67641	0.06 g/kg phenol	Controlled (unspecified), based on test data, 1977 data, average factors	125
Acrolein production	2869	Acrolein process scrubber overheads	301120	Acrolein	107028	0.02 kg/Mg acrolein produced	Incinerator, based on 3.8×10^{27} kg/yr capacity plant	140
Acrolein production	2869	Process fugitives	30112037	Acrolein	107028	0.95 kg/Mg acrolein produced	Leak detection and repair, based on 3.8×10^{27} kg/yr capacity plant	140
Acrylic acid production	2869	Entire process	30113221	Propylene	115071	0.0904 lb/lb acrylic acid produced	Controlled (98% incin.), engineering judgement, ratio propane emissions	90
Acrylic acid production	2869	Process fugitives	30113227	Acrolein	107028	4 kg/Mg acrylic acid produced	Uncontrolled, plant of 68.1 Mg capacity, see reference for more data	140
Acrylic acid production - propylene oxidation	2869	Quench absorber off-gas	30113222	Acrolein	107028	4.5 kg/Mg acrylic acid produced	Based on data from one plant	151
Acrylic acid production - propylene oxidation	2869	Quench absorber off-gas	30113222	Ethyl acrylate	140885	1.2 kg/Mg acrylic acid produced	Based on data from one plant	151

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Acrylic acid production - propylene oxidation	2869	Quench absorber off-gas	30113222	Acetic acid	64197	1.4 kg/Mg acrylic acid produced	Based on data from one plant	151
Acrylic acid production - propylene oxidation	2869	Quench absorber off-gas	30113222	Acetone	67641	1.3 kg/Mg acrylic acid produced	Based on data from one plant	151
Acrylic acid production - propylene oxidation	2869	Quench absorber off-gas	30113222	Acetaldehyde	75070	0.1 kg/Mg acrylic acid produced	Based on data from one plant	151
Acrylic acid production - propylene oxidation	2869	Quench absorber off-gas	30113222	Acrylic acid	79107	18.0 kg/Mg acrylic acid produced	Based on data from one plant	151
Acrylonitrile production	2869	Absorber vent	30125406	Acrylonitrile	107131	0.10 g/kg acrylonitrile produced	Uncontrolled	162
Acrylonitrile production	2869	Absorber vent	30125406	Acrylonitrile	107131	0.002 g/kg acrylonitrile produced	Thermal incinerator	162
Acrylonitrile production	2869	Absorber	30125406	Propylene	115071	0.6 g/kg acrylonitrile produced	Incinerator control, assumed 98% efficient	85
Acrylonitrile production	2869	Absorber vent (start up)	30125407	Acrylonitrile	107131	0.187 g/kg acrylonitrile produced	No control, emissions vented to avoid explosion, factor is average for 1 year	162
Acrylonitrile production	2869	Column vents	30125408	Acrylonitrile	107131	5 g/kg acrylonitrile produced	Uncontrolled	162
Acrylonitrile production	2869	Column vents	30125408	Acrylonitrile	107131	0.10 g/kg acrylonitrile produced	Flare	162
Acrylonitrile production	2869	Columns	30125408	Propylene	115071	3 g/kg acrylonitrile produced	Uncontrolled, based on test data and engineering judgement	85
Acrylonitrile production	2869	Columns	30125408	Propylene	115071	0.06 g/kg acrylonitrile	Incinerator control, assumed 98% efficient	85
Acrylonitrile production	2869	Crude acrylonitrile storage vents	30125409	Acrylonitrile	107131	0.048 g/kg acrylonitrile produced	Uncontrolled, assumed fixed roof	162
Acrylonitrile production	2869	Acrylonitrile run tank vents	30125409	Acrylonitrile	107131	0.128 g/kg acrylonitrile produced	Uncontrolled, assumed fixed roof	162
Acrylonitrile production	2869	Acrylonitrile storage vents	30125409	Acrylonitrile	107131	0.531 g/kg acrylonitrile produced	Uncontrolled, assumed fixed roof	162
Acrylonitrile production	2869	Crude acrylonitrile storage vents	30125409	Acrylonitrile	107131	0.00048 g/kg acrylonitrile produced	Water scrubber	162

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Acrylonitrile production	2869	Acrylonitrile run tank vents	30125409	Acrylonitrile	107131	0.00128 g/kg acrylonitrile produced	Water scrubber	162
Acrylonitrile production	2869	Acrylonitrile storage vents	30125409	Acrylonitrile	107131	0.00531 g/kg acrylonitrile produced	Water scrubber	162
Acrylonitrile production	2869	Tank car loading	30125409	Acrylonitrile	107131	0.167 g/kg acrylonitrile produced	Uncontrolled	162
Acrylonitrile production	2869	Tank car loading	30125409	Acrylonitrile	107131	0.0017 g/kg acrylonitrile produced	Water scrubber	162
Acrylonitrile production	2869	Barge loading	30125409	Acrylonitrile	107131	0.150 g/kg acrylonitrile produced	Uncontrolled	162
Acrylonitrile production	2869	Barge loading	30125409	Acrylonitrile	107131	0.0015 g/kg acrylonitrile produced	Water scrubber	162
Acrylonitrile production	2869	Fugitive	30125409	Acrylonitrile	107131	0.806 g/kg acrylonitrile produced	Uncontrolled	162
Acrylonitrile production	2869	Fugitive	30125409	Acrylonitrile	107131	0.238 g/kg acrylonitrile produced	Leak detection and repair	162
Acrylonitrile production - SONIO process	2869	Absorber vent	30125406	Acrylonitrile	107131	0.1 g/kg acrylonitrile produced	Uncontrolled, based on data from plants and EPA studies	149
Acrylonitrile production - SONIO process	2869	Absorber vent	30125406	Propylene	115071	30.0 g/kg acrylonitrile produced	Uncontrolled, based on data from plants and EPA studies	149
Acrylonitrile production - SONIO process	2869	Absorber vent	30125406	Hydrogen cyanide	74908	0.2 g/kg acrylonitrile produced	Uncontrolled, based on data from plants and EPA studies	149
Acrylonitrile production - SONIO process	2869	Absorber vent	30125406	Propane	74996	60.7 g/kg acrylonitrile produced	Uncontrolled, based on data from plants and EPA studies	149
Acrylonitrile production - SONIO process	2869	Absorber vent	30125406	Acetonitrile	75058	2.0 g/kg acrylonitrile produced	Uncontrolled, based on data from plants and EPA studies	149
Adipic acid production	2869	General	30100101	Phenol	108952	1.3 x 10E-3 lb/lb used	Data from site visit	13
Adipic acid production	2869	Adipic acid refining	30100105	Adipic acid	124049	0.1 lb/ton produced	Uncontrolled	97
Adipic acid production	2869	Storage	30100106	Phenol	108952	1.0 x 10E-5 lb/lb used	Data from site visit	13
Adipic acid production	2869	Adipic acid drying, cooling, storage	30100106	Adipic acid	124049	0.8 lb/ton produced	Baghouse	97

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Adipic acid production	2869	Fugitive	30100180	Phenol	108952	1.3 x 10E-4 lb/lb used	Data from site visit	13
Adiponitrile production	2869	Process vents	30125415	Butadiene, 1,3-	106990	0.05 kg/Mg ADM produced	Controlled, based on emissions and capacities of two plants	82
Adiponitrile production	2869	Equipment leaks	30125420	Butadiene, 1,3-	106990	0.1 kg/Mg ADM produced	Uncontrolled, based on emissions and capacities of two plants	82
Adiponitrile production	2869	Wastewater and handling	30125420	Butadiene, 1,3-	106990	0.009 kg/Mg ADM	Uncontrolled, based on emissions and capacities of two plants	82
Aerosol packaging		Entire process		Perchloroethylene	127184	3.7 kg/Mg of PCE consumed	Uncontrolled, based on aggregate est. of emis. & consumption for 5 facilities/ questionnaires	74, 75
Aerosol packaging		Entire process		Methylene chloride	75092	9.7 kg/Mg of MC consumed	Uncontrolled, based on aggregate emissions/consumption for 10 questionnaire respondents	74, 75
Agricultural spraying	0721	Entire process		Mercury	7439976	500 kg/10E3 kg of contained Hg	Uncontrolled, based on engineering judgement	113
Aluminum reduction	3334	Main stack	303001	Radionuclides		67 nano Ci U-238/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Aluminum reduction	3334	Main stack	303001	Radionuclides		67 nano Ci U-234/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Aluminum reduction	3334	Main stack	303001	Radionuclides		140 nano Ci Th-230/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Aluminum reduction	3334	Main stack	303001	Radionuclides		23 nCi Ra-226/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Aluminum reduction	3334	Main stack	303001	Radionuclides		540 nCi Pb-210/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Aluminum reduction	3334	Main stack	303001	Radionuclides		540 nCi Po-210/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Aluminum reduction	3334	Main stack	303001	Radionuclides		110 nCi Th-232/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Aluminum reduction	3334	Main stack	303001	Radionuclides		110 nCi Ra-228/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Aluminum reduction	3334	Main stack	303001	Radionuclides		530 pCi U-238/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	39

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Aluminum reduction	3334	Main stack	303001	Radionuclides		530 pCi U-234/metric ton Al	scrubber, rough est., center-worked prebake cells	39
Aluminum reduction	3334	Main stack	303001	Radionuclides		1900 pCi Th-230/metric ton Al	Controlled with fluidized-bed scrubber, rough est., center-worked prebake cells	39
Aluminum reduction	3334	Main stack	303001	Radionuclides		430 pCi Ra-226/metric ton Al	Controlled with fluidized-bed scrubber, rough est., center-worked prebake cells	39
Aluminum reduction	3334	Main stack	303001	Radionuclides		2500 pCi Pb-210/metric ton Al	Controlled with fluidized-bed scrubber, rough est., center-worked prebake cells	39
Aluminum reduction	3334	Main stack	303001	Radionuclides		2100 pCi Po-210/metric ton Al	Controlled with fluidized-bed scrubber, rough est., center-worked prebake cells	37
Aluminum reduction	3334	Anode bake plant	30300105	Radionuclides		0.63 nCi U-238/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Aluminum reduction	3334	Anode bake plant	30300105	Radionuclides		0.63 nCi U-234/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Aluminum reduction	3334	Anode bake plant	30300105	Radionuclides		0.31 nCi Th-230/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Aluminum reduction	3334	Anode bake plant	30300105	Radionuclides		0.47 nCi Ra-226/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Aluminum reduction	3334	Anode bake plant	30300105	Radionuclides		1.6 nCi Pb-210/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Aluminum reduction	3334	Anode bake plant	30300105	Radionuclides		1.6 nCi Po-210/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Aluminum reduction	3334	Anode bake plant	30300105	Radionuclides		0.25 nCi Th-232/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Aluminum reduction	3334	Anode bake plant	30300105	Radionuclides		0.25 nCi Ra-226/metric ton Al	Controlled with fluidized-bed scrubber, rough est.	37
Ammonium nitrate production	2873	Neutralizer	30102704	Ammonia	7664417	0.43 - 18.0 kg/Mg NH ₄ NO ₃	Uncontrolled, presented as range	97

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Ammonium nitrate production	2873	Solids formation - rotary drum granulators	30102707	Ammonia	7664417	produced 29.7 kg/Mg NH ₄ NO ₃ produced	because of data variations Uncontrolled	97
Ammonium nitrate production	2873	Solids formation - pan granulators	30102708	Ammonia	7664417	0.07 kg/Mg NH ₄ NO ₃ produced	Uncontrolled	97
Ammonium nitrate production	2873	Solids formations - high density prill towers	30102712	Ammonia	7664417	28.6 kg/Mg NH ₄ NO ₃ produced	Uncontrolled	97
Ammonium nitrate production	2873	High density prill coolers	30102714	Ammonia	7664417	0.02 kg/Mg NH ₄ NO ₃ produced	Uncontrolled, represents coolers and pre-coolers	97
Ammonium nitrate production	2873	Evaporation/condensation operations	30102717	Ammonia	7664417	0.27 - 16.7 kg/Mg NH ₄ NO ₃ produced	Uncontrolled, presented as range because of data variations	97
Ammonium nitrate production	2873	Solids formation - low density prill towers	30102722	Ammonia	7664417	0.13 kg/Mg NH ₄ NO ₃ produced	Uncontrolled	97
Ammonium nitrate production	2873	Low density prill coolers	30102724	Ammonia	7664417	0.15 kg/Mg NH ₄ NO ₃ produced	Uncontrolled, represents coolers and pre-coolers	97
Ammonium nitrate production	2873	Low density prill dryers	30102725	Ammonia	7664417	0 - 1.59 kg/Mg NH ₄ NO ₃ produced	Uncontrolled, presented as range due to data variations, represents dryer and pre-dryer	97
Ammonium nitrate production	2873	Rotary drum granulator coolers	30102729	Ammonia	7664417	0.59 kg/Mg NH ₄ NO ₃ produced	Uncontrolled, represents cooler and pre-cooler	97
Ammonium nitrate production	2873	Pan granulator coolers	30102730	Ammonia	7664417	0 kg/Mg NH ₄ NO ₃ produced	Represents cooler and pre-cooler	97
Ammonium phosphate production	2574	Dryer/cooler	30103001	Fluoride	16984488	0.03 lb/ton P ₂ O ₅	Controlled (not specified)	97
Ammonium phosphate production	2574	Reactor/ammoniator-granulator	30103002	Fluoride	16984488	0.05 lb/ton P ₂ O ₅	Controlled (not specified)	97
Ammonium phosphate production	2574	Product sizing and material transfer	30103003	Fluoride	16984488	0.01 lb/ton P ₂ O ₅	Controlled (not specified)	97
Ammonium phosphate production	2874	Total plant emissions	301030	Ammonia	7664417	0.07 kg/Mg phosphate produced	Controlled (not specified)	97
Ammonium sulfate production	28	Dryer	301	Ammonium sulfate	7783202	0.16 kg/Mg ammonium sulfate produced	Jet scrubber, based on test data from all types of AS dryers	129
Ammonium sulfate production - caprolactam by-product	2869	Rotary dryer	30121009	Caprolactam	105602	1.1 kg/hr	Based on test data	129
Ammonium sulfate production -	2869	Dry rotary	30121009	Ammonium sulfate	7783202	26 kg/Mg ammonium sulfate	Uncontrolled, range of 0.4-77	129

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
caprolactam by-product								
Ammonium sulfate production - caprolactam by-product	2869	Fluidized-bed dryer	30121009	Ammonium sulfate	7783202	produced	kg/Mg, based on test data	129
Ammonium sulfate production - synthetic process	2873	Rotary dryer	30113004	Ammonium sulfate	7783202	26 kg/Mg ammonium sulfate produced	Uncontrolled, based on source test	129
Anhydrous ammonia production	2873	Carbon dioxide regenerator	30100308	Ammonia	7664417	1 kg/Mg NH3 produced	Uncontrolled, range of 0.4-77 kg/Mg, based on test data	97
Anhydrous ammonia production	2873	Condensate steam stripper	30100309	Ammonia	7664417	1.1 kg/Mg NH3 produced	Uncontrolled	97
Aniline production	2869	Process vents	30103403	Benzene	71432	0.0057 kg/Mg aniline	Uncontrolled, from data provided by producer	132
Application of adhesives		End use	308900	Xylene	1330207	1 kg/kg xylene consumed	Engineering judgement	77
Application of adhesives		Entire process	40200701	Perchloroethylene	127184	1 kg/kg of PCE in adhesive applied	Uncontrolled, based on engineering judgement	68
Application of adhesives		Entire process	40200701	Trichloroethylene	79016	1 kg/kg of TCE in adhesive applied	Uncontrolled, based on engineering judgement	105
Application of fungicide - Pentachloronitrobenzene	072	Application	302	Hexachlorobenzene	118741	2 lbs/ton fungicide used	Assumes content = 0.1%, all volatilized - worst case situations	49
Application of herbicide - Dacthal	072	Application	302	Hexachlorobenzene	118741	2 lbs/ton herbicide used	Assumes content = 0.1%, all volatilized - worst case situations	49
Application of paints		Entire process	402	Mercury	7439976	650 kg/10E3 kg of contained Hg	Uncontrolled, based on engineering judgement	113
Application of paints and coatings		Entire process	402	Perchloroethylene	127184	1 kg/kg of PCE in paint or coating appl.	Uncontrolled, based on engineering judgement	68
Application of paints and coatings		Entire process	402	Trichloroethylene	79016	1 kg/kg TCE in paint or coating applied	Uncontrolled, based on engineering judgement	105
Application of paints and coatings	1721	End use	40286801	Xylene	1330207	1 kg/kg xylene consumed	Engineering judgement	77
Application of pesticides	5191	End use		Xylene	1330207	1 kg/kg xylene consumed	Engineering judgement	77
Application of pharmaceuticals containing mercuric compounds	8000	Entire process		Mercury	7439976	200 kg/10E3 kg of Hg applied	Uncontrolled, based on engineering judgement	113
Asbestos - cement pipe	3292	Entire process	30501120	Asbestos	1332214	31.7% kg/ton asbestos consumed	Calculated average uncontrolled	100

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SEC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
manufacturing								
Asbestos - cement pipe manufacturing	3292	Entire process	30501120	Asbestos	1332216	0.076 kg/ton asbestos consumed	factor, calculated range 17.6-46.9	100
Asbestos - cement sheet manufacturing	3292	Entire process	30501120	Asbestos	1332216	127.9 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 0-0.52	100
Asbestos - cement sheet manufacturing	3292	Entire process	30501120	Asbestos	1332216	0.366 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 49.7-277.6	100
Asbestos building waste disposal		Bumping		Asbestos	1332216	6 x 10-5 kg/cubic meter waste	Calculated average controlled factor, calculated range 0-27.76	100
Asbestos building waste disposal		Leveling and compaction at dump site		Asbestos	1332216	2.2 x 10-3 kg/cubic meter waste	Best estimate of uncontrolled emission, range 5 x 10-7 to 2.1 x 10-2	100
Asbestos building waste disposal		Wind erosion during first year at dump site		Asbestos	1332216	3.8 x 10-2 kg/cubic meter waste	Best estimate of uncontrolled emission, range 2 x 10-4 to 6.9 x 10-3	100
Asbestos building waste disposal		Wind erosion after first year at dump site		Asbestos	1332216	4.6 x 10-3 kg/cubic meter waste	Best estimate of uncontrolled emission, range 1.5 x 10-3 to 7.1 x 10-3	100
Asbestos coatings and sealants manufacturing	3292	Entire process		Asbestos	1332216	4.06 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 6.35 x 10-6 - 1000	100
Asbestos coatings and sealants manufacturing	3292	Entire process		Asbestos	1332216	0.067 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 0-500	100
Asbestos friction materials manufacturing	3292	Entire process		Asbestos	1332216	442.2 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 2.19-1000	100
Asbestos friction materials manufacturing	3292	Entire process		Asbestos	1332216	2.87 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 0.002-10	100
Asbestos gaskets and packings manufacturing	3292	Entire process		Asbestos	1332216	1.26 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 0.10-6.6	100
Asbestos gaskets and packings manufacturing	3292	Entire process		Asbestos	1332216	0.00041 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 0-0.09	100
Asbestos insulation materials manufacturing	3292	Entire process		Asbestos	1332216	14.3 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 2.30-18.5	100

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Asbestos insulation materials manufacturing	3292	Entire process		Asbestos	1332214	0.34 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 0.024-1.85	100
Asbestos milling	1499	Entire process	305032	Asbestos	1332214	64.05 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 40.32-104.8	100
Asbestos milling	1499	Entire process	305032	Asbestos	1332214	0.746 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 0.004-0.31	100
Asbestos milling	1499	Entire process	305032	Asbestos	1332214	50 kg/ton asbestos produced	No control	33
Asbestos milling	1499	Entire process	305032	Asbestos	1332214	40 kg/ton asbestos produced	50% control	33
Asbestos milling	1499	Entire process	305032	Asbestos	1332214	10 kg/ton asbestos produced	80% control	33
Asbestos milling	1499	Entire process	305032	Asbestos	7440020	0.00038 lb/ton total asbestos produced	Controlled by fabric filter, based on analysis of one mill	110
Asbestos milling	1499	Milling dusts	305032	Asbestos	1332214	2 kg/metric ton asbestos produced	Uncontrolled	33
Asbestos mining	1499	Winning	305031	Asbestos	1332214	1 kg/ton asbestos produced	Uncontrolled	33
Asbestos mining	1499	Loading	305031	Asbestos	1332214	1 kg/ton asbestos produced	Uncontrolled	33
Asbestos mining	1499	Hauling	305031	Asbestos	1332214	1 kg/ton asbestos produced	Uncontrolled	33
Asbestos mining	1499	Entire process	305031	Asbestos	1332214	1 kg/ton asbestos produced	50% control	33
Asbestos mining	1499	Unloading	30503107	Asbestos	1332214	1 kg/ton asbestos produced	Uncontrolled	33
Asbestos paper manufacturing	3292	Entire process		Asbestos	1332214	0.039 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 0.0001-0.82	100
Asbestos paper manufacturing	3292	Entire process		Asbestos	1332214	0.00038 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 5.1 x 10 ⁻⁸ to 0.04	100
Asbestos product fabrication	3292	Friction material production		Asbestos	1332214	3 kg/ton asbestos produced	Controlled	33
Asbestos product fabrication	3292	Textiles		Asbestos	1332214	20 kg/ton asbestos produced	Uncontrolled	33
Asbestos product fabrication	3292	Textiles		Asbestos	1332214	1 kg/ton asbestos produced	Controlled	33
Asbestos product fabrication	3292	Asbestos paper		Asbestos	1332214	2 kg/ton asbestos produced	Uncontrolled	33
Asbestos product fabrication	3292	Asbestos paper		Asbestos	1332214	0.5 kg/ton asbestos produced	Controlled	33

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Asbestos product fabrication	3292	Sawing asbestos cement sheet		Asbestos	1332214	1838 fibers/cc air/g asbestos machined	Average of test results, cut-off wheel saw	22
Asbestos product fabrication	3292	Sawing asbestos millboard		Asbestos	1332214	647 fibers/cc air/g asbestos machined	Average of test results, toothed blade saw	22
Asbestos product fabrication	3292	Grinding brake shoes		Asbestos	1332214	645 fibers/cc air/g asbestos machined	Average of test results	22
Asbestos product fabrication	3292	Sawing asbestos cement sheet		Asbestos	1332214	305 fibers/cc air/g asbestos machined	Average of test results, toothed blade saw	22
Asbestos product fabrication	3292	Drilling asbestos cement sheet		Asbestos	1332214	283 fibers/cc air/g asbestos machined	Average of test results	22
Asbestos product fabrication	3292	Drilling millboard		Asbestos	1332214	105 fibers/cc air/g asbestos machined	Average of test results	22
Asbestos product fabrication	3292	Floor tile		Asbestos	1332214	2 kg/ton asbestos produced	Uncontrolled	33
Asbestos product fabrication	3292	Floor tile		Asbestos	1332214	0.5 kg/ton asbestos produced	Controlled	33
Asbestos product fabrication	3292	Asbestos cement products	30501120	Asbestos	1332214	0.5 kg/ton asbestos produced	Controlled	33
Asbestos product usage		Brake linings		Asbestos	1332214	5 kg/ton asbestos produced	Uncontrolled	33
Asbestos product usage		Steel fireproofing		Asbestos	1332214	5 kg/ton asbestos produced	Controlled	33
Asbestos product usage		Insulating cement		Asbestos	1332214	13 kg/ton asbestos produced	Controlled	33
Asbestos product usage		Construction industry		Asbestos	1332214	13 kg/ton asbestos produced	Controlled	33
Asbestos textiles manufacturing	3292	Entire process		Asbestos	1332214	31.85 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 13.35-44.4	100
Asbestos textiles manufacturing	3292	Entire process		Asbestos	1332214	1.77 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 0.013-17.75	100
Asbestos-reinforced plastics manufacturing	3292	Entire process		Asbestos	1332214	665.4 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 0.48-1000	100
Asbestos-reinforced plastics manufacturing	3292	Entire process		Asbestos	1332214	2.85 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 4.83 x 10 ⁻⁵ - 100	100
Ascorbic acid production	2833	Plant-wide	301060	Chloroform	67663	223 kg/yr	Based on one facility (30 million	160

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Asphalt distribution/use	5032	Entire process		PM		0.0008 lb/ton asphalt applied	(lb/yr production) PM assumed to be 0.1% of THC	92
Asphalt distribution/use	5032	Entire process		Formaldehyde	50000	0.004 lb/ton asphalt applied	Formaldehyde assumed to be 0.5% of THC	92
Asphalt distribution/use	5032	Entire process		Benzene	71-32	0.077 lb/ton asphalt applied	Benzene assumed to be 9.0% of THC	92
Asphalt plants		Entire process		Formaldehyde	50000	0.00015 lb/ton asphalt produced	Control uncertain	94
Asphalt roofing material production	2952	Asphalt blowing still	30500101	PM		15.2 g/Mg asphalt blown	Uncontrolled	114
Asphalt roofing material production	2952	Asphalt blowing still	30500101	PM		0.048 g/Mg asphalt blown	Afterburner	114
Asphalt roofing material production	2952	Asphalt blowing still	30500101	PM		0.0021 g/Mg asphalt blown	Fume incinerator	114
Asphalt roofing material production	2952	Asphalt blowing still	30500101	PM		0.0058 g/Mg asphalt blown	Process heater furnace	114
Asphalt roofing material production	2952	Asphalt blowing still	30500101	PM		4.8 g/Mg asphalt blown	Stack baffles, represents particulate PM	114
Asphalt roofing material production	2952	Saturator	30500103	PM		0.21 g/Mg produced	Uncontrolled	114
Asphalt roofing material production	2952	Saturator	30500103	PM		0.096 g/Mg produced	ESP controlled	114
Asphalt roofing material production	2952	Saturator	30500103	PM		0.33 g/Mg produced	Uncontrolled	114
Asphalt roofing material production	2952	Saturator and asphalt storage tanks	30500103	PM		2.1 g/Mg produced	High velocity air filter	114
Asphaltic concrete production	2951	Plant stack	305002	Butyraldehyde	123728	0.0024 lb/ton concrete	Based on limited test data, cyclone/wet scrubber control	97
Asphaltic concrete production	2951	Plant stack	305002	Formaldehyde	50000	0.00015 lb/ton concrete	Based on limited test data, cyclone/wet scrubber control	97
Automobile carburetor manufacture	3592	Manual plating cleaning tanks		Sodium hydroxide	1310732	0.03 lb/hr/112 tank	Developed by State agency and plant personnel, assume NaOH is 5.7% soln.	158

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Repease-fired industrial boilers		Boiler	10201101	POM		43.1 pp/j heat input	Average of 2 (17.2-df. 9), multicyclone, represents both gaseous and particulate POM.	116
Repease-fired industrial boilers	0133	Boiler	10201101	POM		77.5 pp/j heat input	2 boilers each w/ multicyclone vented to 1 common stack. Represents both gaseous & particulate POM	116
Batch processes using epichlorohydrin as a feedstock	2800	Storage facilities (includes storage tanks and transfer operations)	301	Epichlorohydrin	106898	0.47 g/kg of epichlorohydrin used	Based on aggregate emissions and throughput estimates, represents no particular facility	109
Batch processes using epichlorohydrin as a feedstock	2800	Fugitive sources	301	Epichlorohydrin	106898	7.10 g/kg of epichlorohydrin used	Based on aggregate emis. & throughput est., represents no partic. fac., based on 300H VOC emis. fac.	109
Battery manufacture	3600	Entire process	3	Mercury	7439976	0.007 kg/kg Hg used	Control status unspecified, based on emission inventory data for three facilities	111
Battery manufacture	3691	Entire process	304-00505	Manganese	7439965	0.004 lb/lb used	Based on engineering estimates	13
Beef cattle feed lots	0211	Entire source	30202001	Ammonia	7664417	11 lb/day/1000 head capacity	Engineering judgment	97
Beer brewing	2082	Bottle washing system	302009	Sodium hydroxide	1310732	9 lb/hr operation	Uncontrolled, developed by the State of NY and a Brewery	158
Benzaldehyde production	2865	Process - general	301	Toluene	100663	9.0 x 10E-4 lb/lb used	Engineering estimate	13
Benzaldehyde production	2865	Fugitive	301	Toluene	100663	2.0 x 10E-4 lb/lb used	Engineering estimate	13
Benzaldehyde production	2865	Storage	407172	Toluene	100663	4.0 x 10E-4 lb/lb used	Engineering estimate	13
Benzene production	2865	General	30125801	Toluene	100663	5.0 x 10E-5 lb/lb used	From State air emission files	13
Benzene production	2865	Storage	407036	Toluene	100663	1.0 x 10E-4 lb/lb used	From State air emission files	13
Benzotic acid production	2865	Process - general	301	Toluene	100663	1.0 x 10E-3 lb/lb used	Engineering estimate	13
Benzotic acid production	2865	Fugitive	301	Toluene	100663	1.0 x 10E-4 lb/lb used	Engineering estimate	13
Benzotic acid production	2865	Storage	407040	Toluene	100663	4.4 x 10E-4 lb/lb used	Engineering estimate	13
Benzyl chloride production	2865	Process - general	301	Toluene	100663	5.5 x 10E-4 lb/lb used	Engineering estimate	13
Benzyl chloride production	2865	Fugitive	301	Toluene	100663	1.5 x 10E-4 lb/lb used	Engineering estimate	13

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Beryllium chloride production	2865	Storage	407060	Toluene	108883	3.0 x 10E-4 lb/lb used	Engineering estimate	13
Beryl ore mining	1099	Entire process	305	Beryllium	7440417	0.2 lb/ton ore mined	Engineering judgment	113
Beryllium alloy - production	36	Holding	303	Beryllium	7440417	0.01 lb/ton alloy produced	Uncontrolled	113
Beryllium alloy - production	36	Holding	303	Beryllium	7440417	0.0004 lb/ton alloy produced	Baghouse	113
Beryllium alloy - stamping/drawing	36	Entire process	303	Beryllium	7440417	0.1 lb/ton Be processed	Engineering judgment	113
Beryllium metal fabrication	347	Entire process	309	Beryllium	7440417	0.1 lb/ton Be processed	Engineering judgment, controlled	113
Bisphenol A production	2869	Storage	301152	Phenol	108952	3.0 x 10E-5 lb/lb used	From engineering estimates	13
Bisphenol A production	2869	Fugitive	301152	Phenol	108952	1.2 x 10E-4 lb/lb used	From engineering estimates	13
Bisphenol A production	2869	General	30115201	Phenol	108952	3.5 x 10E-4 lb/lb used	From engineering estimates	13
Blending of leaded gasoline	2911	Storage/handling of EDC and blended product	306	Ethylene dichloride	107062	1 kg/Mg of EDC used	Control status and basis unspecified	51
Blending of leaded gasoline	2911	Storage/handling of EDC and blended product	306	Ethylene dichloride	107062	0.16 mg/liter leaded gasoline produced	Control status and basis unspecified	51
Boiler - cofiring oil and waste oil with PCBs	49	Stack - flue gas	101	Polychlorinated dibenzo-p-dioxins		Not detectable	Waste oil = 10% total feed, one location, detection limit = 0.031 - 0.10 ug/m3	119
Boiler - cofiring oil and waste oil with PCBs	49	Stack - flue gas	101	Polychlorinated dibenzofurans		Not detectable	Waste oil = 10% total feed, one location, detection limit = 0.031 - 0.10 ug/m3	119
Boilers cofiring wastes - industrial	49	Flue gas	102	Polychlorinated dibenzo-p-dioxins		Not detectable - 76.4 ng/m3	Cofiring waste containing chlor. mater., at upper end of range, PCBs found in feed for 1 of 3 loc.	119
Boilers cofiring wastes - industrial	49	Flue gas	102	Polychlorinated dibenzofurans		0.15 - 5.5 ng/m3	Cofiring waste containing chlorinated materials, four locations	119
Boilers cofiring wastes - industrial	49	Fly ash	102	Polychlorinated dibenzo-p-dioxins		600 ng/g	One location, controls unknown	119
Boilers cofiring wastes - industrial	49	Fly ash	102	Polychlorinated dibenzofurans		300 ng/g	One location, controls unknown	119

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Boilers cofiring wastes - industrial	49	Flue gas	102	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	Not detectable - <1.5 ng/m ³	Cofiring waste containing chlorinated material, nine locations, detected at only two sites	119
Bread baking	205	Processing sponge dough	30203201	Ethanol	64175	5-8 lb/1000 lb bread	Uncontrolled	97
Bread baking	205	Straight dough process	30203202	Ethanol	64175	0.5 lb/1000 lb bread	Uncontrolled	97
Brick manufacture	3251	Kiln	305003	Fluorides		1 lb/ton brick produced	Uncontrolled, applies to tunnel or periodic kiln, gas, oil, or coal fired	97
Bulk polyvinyl chloride polymerization	2821	Fugitives	30101801	Vinyl chloride	75014	0.48 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Bulk polyvinyl chloride polymerization	2821	Reactor opening loss	30101801	Vinyl chloride	75014	0.08 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Bulk polyvinyl chloride polymerization	2821	Monomer recovery vent	30101801	Vinyl chloride	75014	1.50 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Bulk polyvinyl chloride polymerization	2821	Reactor safety valve vents	30101801	Vinyl chloride	75014	0.10 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Bulk polyvinyl chloride polymerization	2821	Area emissions - silo, bagger, loading	30101801	Vinyl chloride	75014	0.23 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Bulk polyvinyl chloride polymerization	2821	Process water	30101801	Vinyl chloride	75014	0.011 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Butadiene production - recovery process	2869	Process vents	301153	Butadiene, 1,3-	106990	0.1 kg/Mg produced	Calculated from national emissions and capacities, average of uncontrolled and controlled plants	79
Butadiene production - recovery process	2869	Equipment leaks	301153	Butadiene, 1,3-	106990	1.2 kg/Mg produced	Calculated from national emissions and capacities, average of uncontrolled and controlled plants	79
Butadiene production - recovery process	2869	Wastewater	301153	Butadiene, 1,3-	106990	0.3 kg/Mg produced	Calculated from national emissions and capacities, average of uncontrolled and controlled plants	79
By-product HCl manufacturing	2819	Entire process	30101101	Hydrogen chloride	7647010	0-8.5 lbs/ton acid produced		34
CCl ₄ and perchloroethylene production - propane chlorination	2869	Drying	30136201	Chlorine	7782505	10.00 g/kg produced	Control uncertain, based on tests and mass balance	95

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
CCl ₄ production - CSD chlorination	2869	Separation	30130201	Sulfur monochloride	10025679	1.0 g/kg produced	Control uncertain, based on tests and mass balance	95
CCl ₄ production - CSD chlorination	2869	Chlorinator	30130201	Carbon tetrachloride	56235	116 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - CSD chlorination	2869	Chlorinator	30130201	Carbon tetrachloride	56235	5.8 kg/Mg CCl ₄ produced	Refrigerated condenser	163
CCl ₄ production - CSD chlorination	2869	Separation	30130201	Carbon disulfide	75150	2 g/kg produced	Control uncertain, based on tests and mass balance	95
CCl ₄ production - CSD chlorination	2869	Separation	30130201	Chlorine	7782505	0.00015 g/kg produced	Control uncertain, based on tests and mass balance	95
CCl ₄ production - CSD chlorination	2869	Storage	30130280	Carbon tetrachloride	56235	0.76 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - CSD chlorination	2869	Storage	30130280	Carbon tetrachloride	56235	0.11 kg/Mg CCl ₄ produced	Refrigerated condenser	163
CCl ₄ production - CSD chlorination	2869	Loading tank cars, trucks, etc.	30130280	Carbon tetrachloride	56235	0.24 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - CSD chlorination	2869	Loading tank cars, trucks, etc.	30130280	Carbon tetrachloride	56235	0.036 kg/Mg CCl ₄ produced	Refrigerated condenser	163
CCl ₄ production - CSD chlorination	2869	Process fugitives	30130280	Carbon tetrachloride	56235	0.60 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - CSD chlorination	2869	Process fugitives	30130280	Carbon tetrachloride	56235	0.32 kg/Mg CCl ₄ produced	Quarterly 1/M pumps and valves	163
CCl ₄ production - CSD chlorination	2869	Process fugitives	30130280	Carbon tetrachloride	56235	0.22 kg/Mg CCl ₄ produced	Monthly 1/M pumps and valves	163
CCl ₄ production - CSD chlorination	2869	Process fugitives	30130280	Carbon tetrachloride	56235	0.14 kg/Mg CCl ₄ produced	Monthly 1/M valves, double mechanical seals on pumps, rupture disks on relief valves	163
CCl ₄ production - hydrocarbon chlorinolysis	2869	Distillation column	30130202	Carbon tetrachloride	56235	0.008 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - hydrocarbon chlorinolysis	2869	Process fugitives	30130280	Carbon tetrachloride	56235	1.5 kg/hr	Uncontrolled	163
CCl ₄ production - hydrocarbon chlorinolysis	2869	Process fugitives	30130280	Carbon tetrachloride	56235	0.54 kg/hr	Monthly 1/M pumps and valves	163

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
chlorinolysis								
CCl ₄ production - hydrocarbon chlorinolysis	2869	Process fugitives	30130280	Carbon tetrachloride	56235	0.78 kg/hr	Quarterly 1/M pumps and valves	163
CCl ₄ production - hydrocarbon chlorinolysis	2869	Process fugitives	30130280	Carbon tetrachloride	56235	0.41 kg/hr	Monthly 1/M valves, double mechanical seals on pumps, rupture disks on relief valves	163
CCl ₄ production - hydrocarbon chlorinolysis	2869	Crude tank (storage)	30130280	Carbon tetrachloride	56235	0.098 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - hydrocarbon chlorinolysis	2869	Crude tank (storage)	30130280	Carbon tetrachloride	56235	0.013 kg/Mg CCl ₄ produced	Refrigerated condenser	163
CCl ₄ production - hydrocarbon chlorinolysis	2869	Bay tanks	30130280	Carbon tetrachloride	56235	0.45 kg/Mg CCl ₄ produced	Uncontrolled, value for two tanks	163
CCl ₄ production - hydrocarbon chlorinolysis	2869	Bay tanks	30130280	Carbon tetrachloride	56235	0.032 kg/Mg CCl ₄ produced	Refrigerated condenser, value for two tanks	163
CCl ₄ production - hydrocarbon chlorinolysis	2869	Carbon tetrachloride tank	30130280	Carbon tetrachloride	56235	0.58 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - hydrocarbon chlorinolysis	2869	Carbon tetrachloride tank	30130280	Carbon tetrachloride	56235	0.087 kg/Mg CCl ₄ produced	Refrigerated condenser	163
CCl ₄ production - hydrocarbon chlorinolysis	2869	Loading barges, tanks	30130280	Carbon tetrachloride	56235	0.24 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - hydrocarbon chlorinolysis	2869	Loading barges, tanks	30130280	Carbon tetrachloride	56235	0.036 kg/Mg CCl ₄ produced	Refrigerated condensers	163
CCl ₄ production - hydrocarbon chlorinolysis	2869	Hex waste handling, disposal	30130280	Carbon tetrachloride	56235	0.0046 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - hydrocarbon chlorinolysis	2869	Hex waste handling, disposal	30130280	Carbon tetrachloride	56235	4.6 x 10E-5 kg/Mg CCl ₄ produced	Vapor balance and refrigerated condensers	163
CCl ₄ production - hydrocarbon chlorinolysis	2869	Waste caustic	30130280	Carbon tetrachloride	56235	0.0029 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - hydrocarbon chlorinolysis	2869	Waste caustic	30130280	Carbon tetrachloride	56235	1.2 x 10E-4 kg/Mg CCl ₄ produced	Steam stripper	163
CCl ₄ production - methane chlorination	2869	Distillation area emergency inert gas vent	30112510	Carbon tetrachloride	56235	0.052 kg/Mg CCl ₄ produced	Uncontrolled	163

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
CCl ₄ production - methane chlorination	2869	Recycled methane inert gas purge vent	30112511	Carbon tetrachloride	56235	<0.042 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - methane chlorination	2869	Crude tank - storage	30112514	Carbon tetrachloride	56235	0.057 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - methane chlorination	2869	Crude tank - storage	30112514	Carbon tetrachloride	56235	0.0046 kg/Mg CCl ₄ produced	Refrigerated condenser	163
CCl ₄ production - methane chlorination	2869	Day tanks	30112514	Carbon tetrachloride	56235	0.36 kg/Mg CCl ₄ produced	Uncontrolled, value is for two tanks	163
CCl ₄ production - methane chlorination	2869	Day tanks	30112514	Carbon tetrachloride	56235	0.025 kg/Mg CCl ₄ produced	Refrigerated condenser, value is for two tanks	163
CCl ₄ production - methane chlorination	2869	Product tank	30112514	Carbon tetrachloride	56235	0.64 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - methane chlorination	2869	Product tank	30112514	Carbon tetrachloride	56235	0.096 kg/Mg CCl ₄ produced	Refrigerated condenser	163
CCl ₄ production - methane chlorination	2869	Loading tank cars, barges	30112514	Carbon tetrachloride	56235	0.24 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - methane chlorination	2869	Loading tank cars, barges	30112514	Carbon tetrachloride	56235	0.036 kg/Mg CCl ₄ produced	Refrigerated condenser	163
CCl ₄ production - methane chlorination	2869	Process waste liquids - handling and disposal	30112514	Carbon tetrachloride	56235	0.018 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - methane chlorination	2869	Process fugitives	30112514	Carbon tetrachloride	56235	2.56 kg/hr	Uncontrolled	163
CCl ₄ production - methane chlorination	2869	Process fugitives	30112514	Carbon tetrachloride	56235	1.6 kg/hr	Quarterly 1/M pumps and valves	163
CCl ₄ production - methane chlorination	2869	Process fugitives	30112514	Carbon tetrachloride	56235	1.1 kg/hr	Monthly 1/M pumps and valves	163
CCl ₄ production - methane chlorination	2869	Process fugitives	30112514	Carbon tetrachloride	56235	0.74 kg/hr	Monthly 1/M valves, double mechanical seals on pumps, rupture disks on relief valves	163
CCl ₄ production - methane chlorination	2869	Process fugitives	30130280	Carbon tetrachloride	56235	0.48 kg/hr	Uncontrolled	163
CCl ₄ production - methanol/methyl chloride chlorination	2869	Process fugitives	30130280	Carbon tetrachloride	56235	0.28 kg/hr	Quarterly 1/M pumps and valves	163

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
methanol/methyl chloride chlorination								
CCl ₄ production - methanol/methyl chloride chlorination	2869	Process fugitives	30130280	Carbon tetrachloride	56235	0.19 kg/hr	Monthly 1/M pumps and valves	163
CCl ₄ production - methanol/methyl chloride chlorination	2869	Process fugitives	30130280	Carbon tetrachloride	56235	0.091 kg/hr	Monthly 1/M valves, double mechanical seals on pumps, rupture disks on relief valves	163
CCl ₄ production - methanol/methyl chloride process	2869	Crude tank storage	30130280	Carbon tetrachloride	56235	0.040 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - methanol/methyl chloride process	2869	Crude tank storage	30130280	Carbon tetrachloride	56235	0.0012 kg/Mg CCl ₄ produced	Refrigerated condenser	163
CCl ₄ production - methanol/methyl chloride process	2869	Surge tank	30130280	Carbon tetrachloride	56235	0.057 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - methanol/methyl chloride process	2869	Surge tank	30130280	Carbon tetrachloride	56235	0.0023 kg/Mg CCl ₄ produced	Refrigerated condenser	163
CCl ₄ production - methanol/methyl chloride process	2869	CCl ₄ /heavies tank	30130280	Carbon tetrachloride	56235	1.39 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - methanol/methyl chloride process	2869	CCl ₄ /heavies tank	30130280	Carbon tetrachloride	56235	0.21 kg/Mg CCl ₄ produced	Refrigerated condenser	163
CCl ₄ production - methanol/methyl chloride process	2869	Loading tank cars, barges, trucks, etc.	30130280	Carbon tetrachloride	56235	0.52 kg/Mg CCl ₄ produced	Uncontrolled	163
CCl ₄ production - methanol/methyl chloride process	2869	Loading tank cars, barges, trucks, etc.	30130280	Carbon tetrachloride	56235	0.078 kg/Mg CCl ₄ produced	Refrigerated condenser	163
Cadmium pigments manufacture	2816	Total emissions	301035	Cadmium	7440439	15 lb/ton Cd charged	Engineering estimate, mass balance, controlled with baghouse	38
Caprolactam production	2869	General	30121001	Phenol	108952	1.3 x 10E-3 lb/lb used	Date from site visit	13

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Caprolactam production	2869	Cyclohexanone purification	30121002	Benzene	71432	0.016 g/kg caprolactam produced	Controlled, condenser 90% eff model plant	145
Caprolactam production	2869	Neutralization reactor	30121005	Benzene	71432	0.0013 g/kg caprolactam produced	Controlled, condenser 70% eff model plant	145
Caprolactam production	2869	Phase separation, solvent recovery, and stripping	30121005	Benzene	71432	0.021 g/kg caprolactam produced	Controlled, condenser 90% eff model plant	145
Caprolactam production	2869	Fugitive	30121080	Phenol	108952	1.3 x 10E-4 lb/lb used	Date from site visit	13
Caprolactam production	2869	Storage	407060	Phenol	108952	1.0 x 10E-5 lb/lb used	Date from site visit	13
Carbon black manufacture - oil furnace	2895	Product recovery laghouse on main process vent	30100504	PM		1900 mg/Mg carbon black produced	Uncontrolled, average of 3 tests, both gaseous and particulate PM	116
Carbon black manufacture - oil furnace	2895	CO boiler/increiner	301005	Hydrogen sulfide	7783064	0.22 lb/ton carbon black produced	Based on test date	97
Carbon black manufacture - oil furnace	2895	Flare	301005	Hydrogen sulfide	7783064	2 lb/ton	Based on test date	97
Carbon black manufacture - oil furnace	2895	Main process vent	30100504	Bulene	106978	0.54 lb/ton carbon black produced	Based on test date	97
Carbon black manufacture - oil furnace	2895	Main process vent	30100504	Carbonyl sulfide	463581	20 lb/ton carbon black produced	Based on test date	97
Carbon black manufacture - oil furnace	2895	Main process vent	30100504	Copper	7440508	0.001 kg/Mg carbon black produced	Uncontrolled, copper content 0.45%, total trace elements 0.25 kg/Mg	53, 97
Carbon black manufacture - oil furnace	2895	Main process vent	30100504	Ethylene	74851	3.2 lb/ton carbon black produced	Based on test date	97
Carbon black manufacture - oil furnace	2895	Main process vent	30100504	Acetylene	74862	90 lb/ton carbon black produced	Range of 10-120 lb/ton based on survey of operating plants	97
Carbon black manufacture - oil furnace	2895	Main process vent	30100504	Propene	74986	0.46 lb/ton carbon black produced	Based on test date	97
Carbon black manufacture - oil furnace	2895	Main process vent	30100504	Carbon disulfide	75150	40 lb/ton carbon black produced	Based on test date	97
Carbon black manufacture - oil furnace	2895	Main process vent	30100504	Fodutene	75285	0.20 lb/ton carbon black produced	Based on test date	97
Carbon black manufacture - oil furnace	2895	Main process vent	30100504	Hydrogen sulfide	7783064	40 lb/ton carbon black produced	Based on test date	97

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
oil furnace						produced		
Cast iron production	3312		305008	Arsenic	7440382	0.007 kg/Mg of metal charged		3
Catalyst manufacture	2819	Entire process	301	Vanadium	7440622	20 lb/ton of vanadium processed	Control status unspecified, based on information obtained from industrial sources	56
Cement kilns cofiring waste	3241	Stack - flue gas	305006	Polychlorinated dibenzofurans		Not detectable - 2.09 ng/m3	3 loc., liquid waste fuel contain. chlor. comp. detect. limits range 1.6-4.9 ng/m3 or 1 ng/ul in).	119
Cement kilns cofiring waste	3241	Stack - flue gas	305006	Polychlorinated dibenzo-p-dioxins		Not detectable	3 loc., liquid waste fuel contain. chlor. comp. detect. limits range 1.6-4.9 ng/m3 or 1 ng/ul in).	119
Cement manufacture	3241	Clinker cooler	305	Manganese	7439965	0.005-0.061 lb/10E3 tons cement produced	Controlled by fabric filter, calculated based on engineering judgement	107
Cement manufacture	3241	Clinker cooler	305	Manganese	7439965	0.023-0.045 lb/10E3 tons cement produced	Controlled by gravel bed, calculated based on engineering judgement	107
Cement manufacture	3241	Clinker cooler	305	Manganese	7439965	0.022 lb/10E3 tons cement produced	Controlled by wet scrubber, calculated based on engineering judgement	107
Cement manufacture - dry process	3241	Kiln	30500606	Chromium	7440473	13 kg/1000 Mg cement produced	Includes fuel emissions, as total chromium, uncontrolled	161
Cement manufacture - dry process	3241	Feed to initial grinding mill	305006	Nickel	7440020	0.01 lb/1000 tons raw mater. feed input	Controlled by fabric filter, based on source tests	110
Cement manufacture - dry process	3241	Air separator after initial grinding mill	305006	Nickel	7440020	0.001 lb/1000 tons raw mater. feed input	Controlled by fabric filter, based on source tests	110
Cement manufacture - dry process	3241	Feed to finish grinding mill	305006	Nickel	7440020	0.01 lb/1000 tons raw mater. feed input	Controlled by fabric filter, based on source tests	110
Cement manufacture - dry process	3241	Air separator after finish grinding mill	305006	Nickel	7440020	0.006 lb/1000 tons raw mater. feed input	Controlled by fabric filter, based on source tests	110
Cement manufacture - dry process	3241	Entire process	305006	Beryllium	7440417	0.00003 lb/1000 tons produced	Engineering judgement	113
Cement manufacture - dry process	3241	Kiln	305006	Cadmium	7440439	3 x 10E-4 lb/ton feed	Controlled with a baghouse or ESP, stack sampling	38

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Cement manufacture - dry process	3241	Raw mill feed	305006	Cadmium	7440439	3.6 x 10E-7 lb/ton feed	Controlled with baghouse	38
Cement manufacture - dry process	3241	Raw mill	305006	Cadmium	7440439	2.7 x 10E-7 lb/ton feed	Controlled with baghouse	38
Cement manufacture - dry process	3241	Raw mill air separator	305006	Cadmium	7440439	8.5 x 10E-7 lb/ton feed	Controlled with baghouse	38
Cement manufacture - dry process	3241	Finish mill feed	305006	Cadmium	7440439	1 x 10E-6 lb/ton feed	Controlled with baghouse	38
Cement manufacture - dry process	3241	Finish mill	305006	Cadmium	7440439	1 x 10E-7 lb/ton feed	Controlled with baghouse	38
Cement manufacture - dry process	3241	Finish mill air separator	305006	Cadmium	7440439	2.6 x 10E-6 lb/ton feed	Controlled with baghouse, stack sampling	38
Cement manufacture - dry process	3241	Kiln	30500606	Manganese	7439965	122 lb/10E3 tons cement produced	Uncontrolled, calculated based on engineering judgement	107
Cement manufacture - dry process	3241	Kiln	30500606	Manganese	7439965	0.021-0.125 lb/10E3 tons cement produced	Controlled by ESP, calculated based on engineering judgement	107
Cement manufacture - dry process	3241	Kiln	30500606	Manganese	7439965	0.013-0.124 lb/10E3 tons cement produced	Controlled by fabric filter, calculated based on engineering judgement	107
Cement manufacture - dry process	3241	Kiln	30500606	Nickel	7440020	0.3 lb/1000 tons raw mater. feed input	Controlled by fabric filter, based on source tests	110
Cement manufacture - dry process	3241	Kiln	30500606	Chromium	7440473	0.006 kg/1000 Mg cement produced	Includes fuel emissions, as total chromium, ESP	161
Cement manufacture - dry process	3241	Kiln	30500606	Chromium	7440473	0.005 kg/1000 Mg cement produced	Includes fuel emissions, as total chromium, fabric filter	161
Cement manufacture - dry process	3241	Dryers and grinders	30500613	Manganese	7439965	48 lb/10E3 tons cement produced	Uncontrolled, calculated based on engineering judgement	107
Cement manufacture - dry process	3241	Raw material grinding mills	30500613	Nickel	7440020	0.0006 lb/1000 ton raw mater. feed input	Controlled by fabric filter, based on source tests	110
Cement manufacture - dry process	3241	Dryer/grinder	30500613	Chromium	7440473	5 kg/1000 Mg cement produced	Uncontrolled, includes fuel emissions, as total chromium	161
Cement manufacture - wet process	3241	Kiln	305006	Cadmium	7440439	2 x 10E-5 lb/ton feed	Controlled with ESP	38

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SEC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
process								
Cement manufacture - wet process	3241	Raw mill	305006	Cadmium	7440439	2 x 10E-5 lb/ton feed	Controlled with baghouse	38
Cement manufacture - wet process	3241	Clinker cooler	305006	Cadmium	7440439	1 x 10E-5 lb/ton feed	Controlled with ESP or baghouse	38
Cement manufacture - wet process	3241	Dryers and grinders	305007	Manganese	7439965	16 lb/10E3 tons cement produced	Uncontrolled, calculated based on engineering judgement	107
Cement manufacture - wet process	3241	Kilns	30500706	Manganese	7439965	114 lb/10E3 tons cement produced	Uncontrolled, calculated based on engineering judgement	107
Cement manufacture - wet process	3241	Kilns	30500706	Manganese	7439965	0.02-0.142 lb/10E3 tons cement produced	Controlled by ESP, calculated based on engineering judgement	107
Cement manufacture - wet process	3241	Kilns	30500706	Manganese	7439965	0.049-0.132 lb/10E3 tons cement produced	Controlled by fabric filter, calculated based on engineering judgement	107
Cement manufacture - wet process	3241	Kiln	30500706	Nickel	7440020	0.2-2 lb/1000 tons raw mater. feed input	Controlled by fabric filter, based on source tests	110
Cement manufacture - wet process	3241	Kiln	30500706	Beryllium	7440417	0.002 lb/ton produced	Engineering judgement	113
Cement manufacture - wet process	3241	Kiln	30500706	Chromium	7440473	12 kg/1000 Mg cement produced	Uncontrolled, includes fuel emissions, as total chromium	161
Cement manufacture - wet process	3241	Kiln	30500706	Chromium	7440473	0.011 kg/1000 Mg cement produced	ESP, includes fuel emissions, as total chromium	161
Cement manufacture - wet process	3241	Kiln	30500706	Chromium	7440473	0.008 kg/1000 Mg cement produced	Fabric filter, includes fuel emissions, as total chromium	161
Cement manufacture - wet process	3241	Clinker cooler	30500714	Nickel	7440020	0.004 lb/1000 tons raw mater. feed input	Controlled by fabric filter, based on source tests	110
Cement manufacture - wet process	3241	Clinker cooler	30500714	Nickel	7440020	0.1 lb/1000 tons raw mater. feed input	Controlled by ESP, based on source tests	110
Cement manufacture - wet process	3241	Clinker cooler	30500714	Nickel	7440020	0.2 lb/1000 tons raw mater. feed input	Controlled by two fabric filters in parallel, based on source tests	110
Cement manufacture - wet process	3241	Clinker cooler	30500714	Beryllium	7440417	0.0008 lb/ton produced	ESP control	113

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Cement manufacture - wet process	3241	Clinker cooler	30500716	Beryllium	7440417	0.0009 lb/ton produced	Baghouse control	113
Cement manufacture - wet process	3241	Clinker cooler	30500716	Chromium	7440473	0.004 kg/1000 Mg cement produced	Fabric filter, includes fuel, as total chromium	161
Cement manufacture - wet process	3241	Clinker cooler	30500716	Chromium	7440473	0.004 kg/1000 Mg cement produced	Gravel bed, includes fuel, as total chromium	161
Cement manufacture - wet process	3241	Clinker cooler	30500716	Chromium	7440473	0.002 kg/1000 Mg cement produced	Wet scrubber, includes fuel, as total chromium	161
Cement manufacture - wet process	3241	Finishing grinding mill after air separator	30500717	Nickel	7440020	0.004 lb/1000 tons raw mater. feed input	Controlled by fabric filter, based on source tests	110
Cement manufacture - wet process	3241	Dryer/grinder	30500717	Chromium	7440473	1.7 kg/1000 Mg cement produced	Uncontrolled, includes fuel emissions, as total chromium	161
Ceramics	36	Entire process		Beryllium	7440417	1 lb/ton Be processed	Engineering judgment, controlled	113
Chain saw exhausts		Chain saw		PM		75 mg/m3	Measured during laboratory tests	114
Chain saw exhausts		Chain saw		PM		31 ug/m3	Average of range of values measured in field use (19-42 ug/m3)	116
Charcoal manufacture	2861	Overall process	30100601	Acetic acid	64197	109 g/kg charcoal	Uncontrolled, range of 102-116, engineering judgement	124
Charcoal manufacture	2861	Overall process	30100601	Methanol	67561	72 g/kg charcoal manufactured	Uncontrolled, range of 67-76 g/kg, engineering judgement	124
Charcoal manufacture	2861	Missouri-type batch kiln	30100603	PM		3.5 g/Mg charcoal produced	Uncontrolled, average of 5 tests	114
Charcoal manufacture	2861	Batch kiln	30100603	Acetic acid	64197	16 g/kg charcoal	Controlled, afterburner, engineering judgement	124
Charcoal manufacture	2861	Batch kiln	30100603	Methanol	67561	11 g/kg charcoal	Controlled, afterburner, engineering judgement	124
Charcoal manufacture	2861	Continuous furnace	30100604	Acetic acid	64197	5.5 g/kg charcoal	Controlled, afterburner, engineering judgement	124
Charcoal manufacture	2861	Continuous furnace	30100604	Methanol	67561	3.8 g/kg charcoal	Controlled, afterburner, engineering judgement	124
Chemical applications	2819	Entire process	301	Manganese	7439965	0.004 lb/lb used	Based on engineering estimates	13
Chemical distribution	5169	Storage emissions	4	Perchloroethylene	127184	0.2 kg/Mg PCE distributed	Assumes storage tanks	68

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
facilities								
Chemical distribution facilities	5169	Handling emissions (filling losses)	4	Perchloroethylene	127184	0.1 kg/Mg PCE distributed	uncontrolled, based on nationwide emis. & distrib. est. for dist. fac. in 1983	68
Chemical distribution facilities	5169	Storage emissions	4	Methylene chloride	75092	0.001 Mg/Mg MC distributed	Assumes partially controlled, based on nationwide emis. & distrib. est. for dist. fac. in 1983	69
Chemical distribution facilities	5169	Handling emissions (filling losses)	4	Methylene chloride	75092	0.0009 Mg/Mg MC distributed	Uncontrolled, based on nationwide emissions and distribution estimates for distr. facilities in 1983	69
Chemical distribution facilities	5169	Storage and handling emissions	4	Trichloroethylene	79016	0.0006 Mg/Mg TCE handled	Partially controlled, based on nationwide emis. & distribution estim. for distr. facilities in 1983	105
Chemical distribution facilities	5169	Storage and handling emissions	4	Trichloroethylene	79016	7.1 lbw/1000 gal TCE handled	Stor. tanks unconf. & loading emis. part. control., based on aggregate TCE emis. for dist. fac./1983	2
Chlor-alkali plant	2812	Diaphragm cell	30100801	Chlorine	7782505	10,000 lb/100 tons produced	Control status uncertain, based on information provided by one TCE supplier	97
Chlor-alkali plant	2812	Mercury cell	30100802	Chlorine	7782505	16,000 lb/100 tons produced	Range of 2,000-10,000 lb/ton	97
Chlor-alkali plant	2812	Loading chlorine/tank car vents	30100803	Chlorine	7782505	450 lb/100 tons	Range of 4,000-16,000 lb/ton	97
Chlor-alkali plant	2812	Loading chlorine/storage tank vents	30100804	Chlorine	7782505	1200 lb/100 tons	Engineering judgement and test data	97
Chlor-alkali plant	2812	Air blowing mercury cell brine	30100804	Chlorine	7782505	500 lb/100 tons	Engineering judgement and test data	97
Chlorine production	2812	Absorber process vent tail gas scrubbing		Carbon tetrachloride	56235	550 kg/Gg chlorine production capacity	Uncontrolled, not all plants use CCl ₄	134
Chlorine production	2812	Fugitives/tail gas scrubbing		Carbon tetrachloride	56235	38 kg/Mg chlorine production capacity	Uncontrolled, calculated by total emission/total capacity of plants that use CCl ₄	134
Chlorine production	2812	Nitrogen trichloride diluent		Carbon tetrachloride	56235	1.6 kg/Mg CCl ₄ used	Uncontrolled, not all plants use CCl ₄ in this way	134

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Chlorine production	2812	Liquefaction blow gases	301008	Chlorine	7782505	2,000-16,000 lb/100 tons Cl liquefied	No control	25
Chlorine production	2812	Liquefaction blow gases	301008	Chlorine	7782505	25-1090 lb/100 tons Cl liquefied	Controlled with water absorber	25
Chlorine production	2812	Liquefaction blow gases	301008	Chlorine	7782505	1 lb/100 tons Cl liquefied	Controlled with caustic or lime scrubber	25
Chlorine production	2812	Cell gas condensate	301008	Chlorine	7782505	400-1200 lb/100 tons Cl liquefied	No control	25
Chlorine production	2812	Tank car loading venting	30100803	Chlorine	7782505	0-100.8 lb/100 tons Cl liquefied	Controlled with scrubber	25
Chlorine production	2812	Air blowing of brine	30100805	Chlorine	7782505	56 lb/100 tons Cl produced	Mercury-cell plants, no control	25
Chlorine production - mercury cell process (chloralkali)	2812	End-box ventilation	301008	Mercury	7439976	0.005 kg/10E3 kg of Cl ₂ produced	Uncontrolled, based on source tests	113
Chlorine production - mercury cell process (chloralkali)	2812	Cell room ventilation, ridge vent	301008	Mercury	7439976	0.002 kg/10E3 kg of Cl ₂ produced	Uncontrolled, based on source tests	113
Chlorine production - mercury cell process (chloralkali)	2812	Cell room ventilation, fan ventilation (one fan)	301008	Mercury	7439976	0.0003 kg/10E3 kg of Cl ₂ produced	Uncontrolled, based on source tests	113
Chlorine production - mercury cell process (chloralkali)	2812	Hydrogen stream losses	301008	Mercury	7439976	0.01 kg/10E3 kg of Cl ₂ produced	Uncontrolled, based on material balance	113
Chlorine production - mercury cell process (chloralkali)	2812	Ventilation losses	301008	Mercury	7439976	0.02 kg/10E3 kg of Cl ₂ produced	Uncontrolled, based on material balance	113
Chlorine production - mercury cell process (chloralkali)	2812	Hydrogen stream	301008	Mercury	7439976	0.001 to 0.005 kg/10E3 kg Cl ₂ produced	Uncontrolled, based on source tests	113
Chlorine production - mercury cell process (chloralkali)	2812	Hydrogen stream	301008	Mercury	7439976	0.0005 kg/103 kg of Cl ₂ produced	Controlled by carbon adsorber, based on source tests	113
Chlorobenzene production	2865	Benzene storage	301301	Benzene	71432	0.41 g/kg chlorobenzene	Uncontrolled	132
Chlorobenzene production	2865	Benzene storage	301301	Benzene	71432	0.06 g/kg chlorobenzene	Controlled, internal floating roof, 85% efficiency	132
Chlorobenzene production	2865	Atmospheric distillation vents	3013010	Benzene	71432	0.32 g/kg chlorobenzene produced	Uncontrolled	132
Chlorobenzene production	2865	Atmospheric distillation vents	3013010	Benzene	71432	0.0042 g/kg chlorobenzene	Controlled, carbon adsorption,	132

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Chlorobenzene production	2865	Tail gas treatment	30130101	Benzene	71432	produced 0.52 g/kg chlorobenzene produced	98.7% efficiency Uncontrolled, hypothetical plant	132
Chlorobenzene production	2865	Tail gas treatment	30130101	Benzene	71432	0.0067 g/kg chlorobenzene produced	Controlled, carbon adsorption, 98.7% eff., based on hypothetical plant	132
Chlorobenzene production	2865	Process emissions	30130135	Chlorobenzene	108907	2.06 kg/Mg chlorobenzene produced	Estimates based on plant visits, no specifics on control, likely to be high value	48
Chlorobenzene production	2865	Storage emissions	30130135	Chlorobenzene	108907	0.45 kg/Mg chlorobenzene produced	Estimates based on plant visits, no specifics on control, likely to be high value	48
Chlorobenzene production	2865	Fugitive emissions	30130180	Chlorobenzene	108907	0.69 kg/Mg chlorobenzene produced	Estimates based on plant visits, no specifics on control, likely to be high value	48
Chlorobenzene production	2865	Fugitive emissions	30130180	Benzene	71432	0.58 g/kg chlorobenzene	Uncontrolled	132
Chlorobenzene production	2865	Fugitive emissions	30130180	Benzene	71432	0.16 g/kg chlorobenzene	Controlled, detection and repair of major leaks, 71% efficiency	132
Chloroform production (any method)	2869	Handling/loading tank cars, trucks	30112514	Chloroform	67663	0.35 kg/Mg loaded	Uncontrolled	164
Chloroform production - methane chlorination	2869	Distillation area emergency inert gas vent	30112510	Chloroform	67663	0.008 kg/Mg total chloromethanes prod.	Uncontrolled	164
Chloroform production - methane chlorination	2869	Storage tanks	30112511	Chloroform	67663	1.5 kg/Mg total chloromethanes produced	Total of curdle, day and product tanks for 50,000 Mg plant, fixed roof tanks	164
Chloroform production - methane chlorination	2869	Methane inert purge vent	30112511	Chloroform	67663	0.0033 kg/Mg total chloromethanes prod.	Uncontrolled	164
Chloroform production - methane chlorination	2869	Process fugitives	30112514	Chloroform	67663	3.1 kg/hr	Uncontrolled	164
Chloroform production - methane chlorination	2869	Process fugitives	30112514	Chloroform	67663	1.1 kg/hr	Controlled, monthly I&M, see reference for more control values	164
Chloroform production - methane chlorination	2869	Handling/disposing liquid waste	30112514	Chloroform	67663	0.21 kg/Mg chloroform produced	Uncontrolled, assumed all CHCl3 evaporates	164

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Chloroform production - methanol/CH ₃ Cl chlorination	2869	Storage tanks	30112511	Chloroform	67663	1.6 kg/Mg total chloromethane produced	Total of crude, surge, day, product tanks for 22,500 Mg plant, fixed-roof tanks	164
Chloroform production - methanol/CH ₃ Cl chlorination	2869	Process fugitives	30112514	Chloroform	67663	0.46 kg/hr	Controlled, monthly ILM, see reference for more control values	164
Chloroform production - methanol/CH ₃ Cl chlorination	2869	Process fugitives	30112514	Chloroform	67663	1.4 kg/hr	Uncontrolled	164
Chloromethane production - methane chlorination	2869	Recycled-methane inert-gas purge vent	30112511	Carbon tetrachloride	56235	<0.0042 kg/Mg total chlorometh. capac.	Uncontrolled, based on information supplied by one producer	71
Chloromethane production - methane chlorination	2869	Recycled-methane inert-gas purge vent	30112511	Chloroform	67663	0.0033 kg/Mg total chloromethanes capac.	Uncontrolled, based on information supplied by one producer	71
Chloromethane production - methane chlorination	2869	Recycled-methane inert-gas purge vent	30112511	Methyl chloride	74873	2.04 kg/Mg total chloromethanes capac.	Uncontrolled, based on information supplied by one producer	71
Chloromethane production - methane chlorination	2869	Recycled-methane inert-gas purge vent	30112511	Methylene chloride	75092	0.051 kg/Mg total chloromethanes capac.	Uncontrolled, based on information supplied by one producer	71
Chloromethane production - methanol/CH ₃ Cl chlorination	2869	Inert-gas purge vent for condenser associated with chloroform distillation	30112510	Chloroform	67663	0.0056 kg/Mg total chloromethanes prod.	Uncontrolled, hypoth. fac. producing 25% methyl chloride, 48% MC, 25% chloroform, & 2% carbon tet.	72
Chloromethane production - methanol/CH ₃ Cl chlorination	2869	Inert-gas purge vent for condenser assoc. w/ methyl chloride prod. recovery	30112510	Methyl chloride	74873	1.5 kg/Mg total chloromethanes prod.	Uncontrolled, hypoth. fac. producing 25% methyl chloride, 48% MC, 25% chloroform, & 2% carbon tet.	72
Chloromethane production - methanol/CH ₃ Cl chlorination	2869	Inert-gas purge vent for condenser associated with MC distillation	30112510	Methylene chloride	75092	0.019 kg/Mg total chloromethanes prod.	Uncontrolled, hypoth. fac. producing 25% methyl chloride, 48% MC, 25% chloroform, & 2% carbon tet.	72
Chrome plating	3471	Plating tank	301	Chromium	7440473	4.8 x 10 ⁻³ g/hr/amp	Uncontrolled	161
Chrome plating	3471	Hard plating tank	301	Chromium	7440473	0.0008 kg/hr/m ² tank area	Range 0.00026-0.004 and 0.00043-0.0012, as Cr VI, uncontrolled	161
Chrome plating	3471	Chromic acid anodizing tank	301	Chromium	7440473	0.0093 kg/hr/m ² tank area	As Cr VI, uncontrolled	161
Chromic acid production	2819	Chromic acid reactor, melter, flaker	301	Chromium	7440473	0.2 kg/Mg raw material processed	Uncontrolled, as total chromium, likely to be Cr VI	161

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Chromic acid production	2819	Chromic acid reactor, melter, flaker	301	Chromium	7440473	0.01 kg/Mg raw material processed	Scrubber, as total chromium, likely to be Cr VI	161
Chromic acid production	2819	Chromic acid filter	301	Chromium	7440473	1.4 kg/Mg raw material processed	Uncontrolled, as total chromium, likely to be Cr VI	161
Chromic acid production	2819	Chromic acid filter	301	Chromium	7440473	0.01 kg/Mg raw material processed	Scrubber, as total chromium, likely to be Cr VI	161
Chromic acid production	2819	Packaging	301	Chromium	7440473	0.7 kg/Mg raw material processed	Uncontrolled, as total chromium, likely to be Cr VI	161
Chromic acid production	2819	Packaging	301	Chromium	7440473	0.04 kg/Mg raw material processed	Scrubber, as total chromium, likely to be Cr VI	161
Chromite ore refining	3339	Chromite ore dryer	303	Chromium	7440473	0.005 kg/Mg ore processed	Bag collector, as total chromium, likely Cr III	161
Chromite ore refining	3339	Chromite ore dryer	303	Chromium	7440473	0.001 kg/Mg ore processed	Wet scrubber (assumed 99%), as total chromium, likely Cr III	161
Chromite ore refining	3339	Hardinge mill and cyclone	303	Chromium	7440473	0.003 kg/Mg ore processed	Fabric filter, as total chromium, likely Cr III	161
Chromite ore refining	3339	Refined ore storage	303	Chromium	7440473	0.05 kg/Mg ore processed	Uncontrolled, as total chromium, likely Cr III	161
Chromite ore refining	3339	Refined ore storage	303	Chromium	7440473	0.00005 kg/Mg ore processed	Dust collector, as total chromium, likely Cr III	161
Coal and refuse-derived fuel combustion	49	Flue gas	1	Tetrachlorodibenzo-p-dioxins, total		Not detectable	One location, detection limit = 5 ng/m ³ , 15% 30f	119
Coal and refuse-derived fuel combustion	49	Flue gas	1	Polychlorinated dibenzo-p-dioxins		Not detectable	One location, detection limit = 0.25 ng/m ³	119
Coal and refuse-derived fuel combustion	49	Flue gas	1	Polychlorinated dibenzofurans		Not detectable	One location, detection limit = 0.25 ng/m ³	119
Coal combustion		Coal-fired boilers or furnaces, util/commerc/industrial	1	Formaldehyde	50000	170.5 lb/10E12 Btu	Uncontrolled, based on measured emis. factors, insurf. data to characterize emis. by boiler type	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industrial	1	Manganese	7439965	2980 lb/10E12 Btu	Uncontrolled, based on source tests	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SEC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Manganese	7439965	1300 lb/10E12 Btu	Controlled with multiclone, based on controlled and uncontrolled emission test data	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Manganese	7439965	642 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Manganese	7439965	36 lb/10E12 Btu	Controlled with scrubber, based on source tests	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Manganese	7439965	808-2980 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Manganese	7439965	377-1390 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Manganese	7439965	177 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Manganese	7439965	690-1300 lb/10E12 Btu	Uncontrolled, based on measured and calculated emission factors	36
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Manganese	7439965	322-607 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Manganese	7439965	151 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Manganese	7439965	70-131 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired stoker boilers, util/commerc/industr	1	Manganese	7439965	2170 lb/10E12 Btu	Uncontrolled, based on source tests	36
Coal combustion		Bituminous coal-fired stoker boilers, util/commerc/industr	1	Manganese	7439965	196-1010 lb/10E12 Btu	Controlled with multiclone, based on measured and calculated emission factors	36
Coal combustion		Bituminous coal-fired stoker boilers, util/commerc/industr	1	Manganese	7439965	31-475 lb/10E12 Btu	Controlled with ESP, based on measured and calculated emission factors	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		Lignite coal-fired pulverized dry bottom boilers, util//commerc/industr	1	Manganese	7439965	16,200 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boilers, util//commerc/industr	1	Manganese	7439965	7560 lb/10E12 Btu	Controlled by multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boilers, util//commerc/industr	1	Manganese	7439965	3500 lb/10E12 Btu	Controlled by ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boilers, util//commerc/industr	1	Manganese	7439965	196 lb/10E12 Btu	Controlled by scrubber, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util//commerc/industr	1	Manganese	7439965	4,410-16,250 lb/10E12 Btu	Uncontrolled	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util//commerc/industr	1	Manganese	7439965	2050-7580 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util//commerc/industr	1	Manganese	7439965	965 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util//commerc/industr	1	Manganese	7439965	3760-7090 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util//commerc/industr	1	Manganese	7439965	1760-3310 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util//commerc/industr	1	Manganese	7439965	823 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired stoker boilers, util//commerc/industr	1	Manganese	7439965	362-714 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired stoker boilers, util//commerc/industr	1	Manganese	7439965	11,800 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired stoker boilers, util//commerc/industr	1	Manganese	7439965	1070-5510 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		Lignite coal-fired stoker boilers, util/commerc/industr	1	Manganese	7439965	149-2590 lb/10E12 Btu	judgement	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Manganese	7439965	3070 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Manganese	7439965	1430 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Manganese	7439965	661 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Manganese	7439965	37 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Manganese	7439965	832-3070 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Manganese	7439965	308-1430 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Manganese	7439965	182 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Manganese	7439965	710-1340 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired cyclone boilers, util/commerc/industr	1	Manganese	7439965	332-625 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired cyclone boilers, util/commerc/industr	1	Manganese	7439965	155 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired cyclone boilers, util/commerc/industr	1	Manganese	7439965	72-135 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired stoker	1	Manganese	7439965	2230 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		boilers, util/commerc/industr	1	Manganese	7439965	202-1040 lb/10E12 Btu	engineering judgement	36
		Anthraccite coal-fired stoker boilers, util/commerc/industr					Controlled with multicyclone, calculated based on engineering judgement	
Coal combustion		Anthraccite coal-fired stoker boilers, util/commerc/industr	1	Manganese	7439965	32-489 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired boiler, util/commerc/industr	1	Mercury	7439976	16 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Coal combustion		Bituminous coal-fired boiler, util/commerc/industr	1	Mercury	7439976	16 lb/10E12 Btu	Controlled by multicyclone, based on engineering judgement	36
Coal combustion		Bituminous coal-fired boiler, util/commerc/industr	1	Mercury	7439976	8-16 lb/10E12 Btu	Controlled by ESP, based on engineering judgement	36
Coal combustion		Bituminous coal-fired boiler, util/commerc/industr	1	Mercury	7439976	0.96-7.4 lb/10E12 Btu	Controlled by scrubber, based on engineering judgement	36
Coal combustion		Lignite coal-fired boilers, util/commerc/industr	1	Mercury	7439976	21 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Coal combustion		Lignite coal-fired boilers, util/commerc/industr	1	Mercury	7439976	21 lb/10E12 Btu	Controlled by multicyclone, based on engineering judgement	36
Coal combustion		Lignite coal-fired boilers, util/commerc/industr	1	Mercury	7439976	10-21 lb/10E12 Btu	Controlled by ESP, based on engineering judgement	36
Coal combustion		Lignite coal-fired boilers, util/commerc/industr	1	Mercury	7439976	1.2-9.6 lb/10E12 Btu	Controlled by scrubber, based on engineering judgement	36
Coal combustion		Anthraccite coal-fired boilers, util/commerc/industr	1	Mercury	7439976	18 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Coal combustion		Anthraccite coal-fired boilers, util/commerc/industr	1	Mercury	7439976	9-18 lb/10E12 Btu	Controlled by ESP, based on engineering judgement	36
Coal combustion		Anthraccite coal-fired boilers, util/commerc/industr	1	Mercury	7439976	1.1-8.3 lb/10E12 Btu	Controlled by scrubber, based on engineering judgement	36
Coal combustion		Anthraccite coal-fired boilers, util/commerc/industr	1	Mercury	7439976	18 lb/10E12 Btu	Controlled by multicyclone, based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Nickel	7440020	1030-1290 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Nickel	7440020	522-654 lb/10E12 Btu	Controlled with multistage, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Nickel	7440020	280-352 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Nickel	7440020	37-46 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Nickel	7440020	640-1290 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Nickel	7440020	425-654 lb/10E12 Btu	Controlled with multistage, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Nickel	7440020	228-352 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Nickel	7440020	30-46 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Nickel	7440020	174-1290 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Nickel	7440020	88-654 lb/10E12 Btu	Controlled with multistage, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Nickel	7440020	47-352 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Nickel	7440020	6.3-46 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired stoker boilers, util/commerc/industr	1	Nickel	7440020	775-1290 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired stoker boilers, util/commerc/industr	1	Nickel	7440020	392-654 lb/10E12 Btu	Controlled with multistage, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		Bituminous coal-fired stoker boilers, util/commerc/industr	1	Nickel	7440020	211-352 lb/10E12 Btu	judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Nickel	7440020	928-1160 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Nickel	7440020	470-587 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Nickel	7440020	252-316 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Nickel	7440020	33-42 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Nickel	7440020	154-1160 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Nickel	7440020	382-587 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Nickel	7440020	205-316 lb/10E12 Btu	Controlled with multiclone, based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Nickel	7440020	27-42 lb/10E12 Btu	Controlled with ESP, based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Nickel	7440020	157-1160 lb/10E12 Btu	Controlled with scrubber, based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Nickel	7440020	79-587 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Nickel	7440020	43-316 lb/10E12 Btu	Controlled with multiclone, based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Nickel	7440020	5.6-42 lb/10E12 Btu	Controlled with ESP, based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Nickel	7440020	5.6-42 lb/10E12 Btu	Controlled with scrubber, based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		Lignite coal-fired stoker boilers, util/commerc/industr	1	Nickel	7440020	696-1160 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Coal combustion		Lignite coal-fired stoker boilers, util/commerc/industr	1	Nickel	7440020	352-587 lb/10E12 Btu	Controlled with multilevels, based on engineering judgement	36
Coal combustion		Lignite coal-fired stoker boilers, util/commerc/industr	1	Nickel	7440020	189-316 lb/10E12 Btu	Controlled with ESP, based on engineering judgement	36
Coal combustion		Lignite coal-fired stoker boilers, util/commerc/industr	1	Nickel	7440020	1790-2240 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Nickel	7440020	906-1160 lb/10E12 Btu	Controlled with multilevels, based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Nickel	7440020	487-610 lb/10E12 Btu	Controlled with ESP, based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Nickel	7440020	64-81 lb/10E12 Btu	Controlled with scrubber, based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Nickel	7440020	1460-2240 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Nickel	7440020	739-1140 lb/10E12 Btu	Controlled with multilevels, based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Nickel	7440020	597-610 lb/10E12 Btu	Controlled with ESP, based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Nickel	7440020	53-81 lb/10E12 Btu	Controlled with scrubber, based on engineering judgement	36
Coal combustion		Anthracite coal-fired cyclone boilers, util/commerc/industr	1	Nickel	7440020	303-2240 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Coal combustion		Anthracite coal-fired cyclone boilers, util/commerc/industr	1	Nickel	7440020	153-1140 lb/10E12 Btu	Controlled with multilevels, based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		Anthracite coal-fired cyclone boilers, util/commerc/industr	1	Nickel	7440020	82-610 lb/10E12 Btu	Controlled with ESP, based on engineering judgment	36
Coal combustion		Anthracite coal-fired cyclone boilers, util/commerc/industr	1	Nickel	7440020	11-81 lb/10E12 Btu	Controlled with scrubber, based on engineering judgment	36
Coal combustion		Anthracite coal-fired stoker boilers, util/commerc/industr	1	Nickel	7440020	1350-2540 lb/10E12 Btu	Uncontrolled, based on engineering judgment	36
Coal combustion		Anthracite coal-fired stoker boilers, util/commerc/industr	1	Nickel	7440020	683-1140 lb/10E12 Btu	Controlled with multiclone, based on engineering judgment	36
Coal combustion		Anthracite coal-fired stoker boilers, util/commerc/industr	1	Nickel	7440020	367-610 lb/10E12 Btu	Controlled with ESP, based on engineering judgment	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Arsenic	7440382	694 lb/10E12 Btu	Uncontrolled, based on emission test data	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Arsenic	7440382	335 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Arsenic	7440382	40.1 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Arsenic	7440382	17.2 lb/10E12 Btu	Controlled with scrubber, based on source tests	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Arsenic	7440382	1340 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Arsenic	7440382	658 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Arsenic	7440382	168 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Arsenic	7440382	76.7 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgment	36
Coal combustion		Bituminous coal-fired cyclone	1	Arsenic	7440382	115-310 lb/10E12 Btu	Uncontrolled, based on measured	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	ECC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		boilers, util/commerc/industr						
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Arsenic	7440382	56-152 lb/10E12 Btu	and calculated emission factors Multicell, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Arsenic	7440382	16.4 lb/10E12 Btu	ESP, based on source tests	36
Coal combustion		Bituminous coal-fired spreader stoker, util/commerc/industr	1	Arsenic	7440382	264-542 lb/10E12 Btu	Uncontrolled, based on source tests	36
Coal combustion		Bituminous coal-fired spreader stoker, util/commerc/industr	1	Arsenic	7440382	129-265 lb/10E12 Btu	Controlled with multicell, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired spreader stoker, util/commerc/industr	1	Arsenic	7440382	33-67 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired overfeed stoker, util/commerc/industr	1	Arsenic	7440382	562-1030 lb/10E12 Btu	Uncontrolled, based on source tests	36
Coal combustion		Bituminous coal-fired overfeed stoker, util/commerc/industr	1	Arsenic	7440382	265-505 lb/10E12 Btu	Controlled with multicell, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired overfeed stoker, util/commerc/industr	1	Arsenic	7440382	67-129 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boiler, util/commerc/industr	1	Arsenic	7440382	1390 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boiler, util/commerc/industr	1	Arsenic	7440382	683 lb/10E12 Btu	Controlled with multicell, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boiler, util/commerc/industr	1	Arsenic	7440382	82 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boiler, util/commerc/industr	1	Arsenic	7440382	35 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Arsenic	7440382	2750 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Arsenic	7440382	1340 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Arsenic	7440382	343 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Arsenic	7440382	156 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Arsenic	7440382	235-632 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Arsenic	7440382	114-310 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Arsenic	7440382	29 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired spreader stoker boilers, util/commerc/industr	1	Arsenic	7440382	538-1100 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired spreader stoker boilers, util/commerc/industr	1	Arsenic	7440382	263-540 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired spreader stoker boilers, util/commerc/industr	1	Arsenic	7440382	67-137 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired overfeed stoker boiler, util/commerc/industr	1	Arsenic	7440382	1100-2100 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired overfeed stoker boiler, util/commerc/industr	1	Arsenic	7440382	540-1030 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired overfeed stoker boiler, util/commerc/industr	1	Arsenic	7440382	137-263 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		util/commerc/industr						
		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Arsenic	7440382	266 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Arsenic	7440382	130 lb/10E12 Btu	Controlled with multiclones, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Arsenic	7440382	15.6 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Arsenic	7440382	6.7 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Arsenic	7440382	521 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Arsenic	7440382	256 lb/10E12 Btu	Controlled with multiclones, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Arsenic	7440382	65 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Arsenic	7440382	29.8 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired cyclone boilers, util/commerc/industr	1	Arsenic	7440382	45-121 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired cyclone boilers, util/commerc/industr	1	Arsenic	7440382	22-59 lb/10E12 Btu	Controlled with multiclones, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired cyclone boilers, util/commerc/industr	1	Arsenic	7440382	5.6 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired spreader stoker boilers, util/commerc/industr	1	Arsenic	7440382	103-210 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		Anthracite coal-fired spreader stoker boilers, util/commerc/industr	1	Arsenic	7440382	50-105 lb/10E12 Btu	Controlled with multilevel, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired spreader stoker boilers, util/commerc/industr	1	Arsenic	7440382	13-26 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired overfeed stoker boilers, util/commerc/industr	1	Arsenic	7440382	210-401 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired overfeed stoker boilers, util/commerc/industr	1	Arsenic	7440382	103-196 lb/10E12 Btu	Controlled with multilevel, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired overfeed stoker boilers, util/commerc/industr	1	Arsenic	7440382	26-50 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Beryllium	7440417	<81 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Beryllium	7440417	<52 lb/10E12 Btu	Controlled with multilevel, calculated based on engineering judgment	36
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Beryllium	7440417	0.52 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Coal combustion		Bituminous coal-fired stoker boilers, util/commerc/industr	1	Beryllium	7440417	73 lb/10E12 Btu	Uncontrolled, based on source tests	36
Coal combustion		Bituminous coal-fired stoker boilers, util/commerc/industr	1	Beryllium	7440417	9.8-46 lb/10E12 Btu	Controlled with multilevel, based on source tests and engineering judgment	36
Coal combustion		Bituminous coal-fired stoker boilers, util/commerc/industr	1	Beryllium	7440417	5.9 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Coal combustion		Lignite coal-fired pulverized (dry or wet bottom) boilers, util/commerc/industr	1	Beryllium	7440417	131 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Coal combustion		Lignite coal-fired pulverized (dry or wet bottom) boilers, util/commerc/industr	1	Beryllium	7440417	86 lb/10E12 Btu	Controlled with multilevel, calculated based on engineering judgment	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		Lignite coal-fired pulverized (dry or wet bottom) boilers, util/com/indus	1	Beryllium	7440417	4.9 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized (dry or wet bottom) boilers, util/com/indus	1	Beryllium	7440417	0.18 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Beryllium	7440417	<130 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Beryllium	7440417	<84 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Beryllium	7440417	0.84 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired stoker boilers, util/commerc/industr	1	Beryllium	7440417	118 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired stoker boilers, util/commerc/industr	1	Beryllium	7440417	16-74 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired stoker boilers, util/commerc/industr	1	Beryllium	7440417	9.5 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized (dry or wet bottom) boilers, util/com/ind	1	Beryllium	7440417	81 lb/10E12 Btu	Uncontrolled, based on source tests for dry bottom boilers	36
Coal combustion		Bituminous coal-fired pulverized (dry or wet bottom) boilers, util/com/ind	1	Beryllium	7440417	52 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized (dry or wet bottom) boilers, util/com/ind	1	Beryllium	7440417	3.0 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Coal combustion		Bituminous coal-fired pulverized (dry or wet bottom) boilers, util/com/ind	1	Beryllium	7440417	0.11 lb/10E12 Btu	Controlled with scrubber, based on one source test	36
Coal combustion		Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/com/ind	1	Beryllium	7440417	50 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/com/ind	1	Beryllium	7440417	32 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/com/ind	1	Beryllium	7440417	1.8 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/com/ind	1	Beryllium	7440417	0.07 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/com/ind	1	Beryllium	7440417	<50 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/com/ind	1	Beryllium	7440417	<32 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/com/ind	1	Beryllium	7440417	0.32 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/com/ind	1	Beryllium	7440417	45 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/com/ind	1	Beryllium	7440417	6-28 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/com/ind	1	Beryllium	7440417	3.6 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/com/ind	1	Cadmium	7440439	44.4 lb/10E12 Btu	Controlled, based on source tests	36
Coal combustion		Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/com/ind	1	Cadmium	7440439	31.6 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Coal combustion		Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/com/ind	1	Cadmium	7440439	5.0-20 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Coal combustion		Anthracite coal-fired pulverized (wet or dry bottom) boilers, util/com/ind	1	Cadmium	7440439	0.35-1.6 lb/10E12 Btu	Controlled with scrubber, based on source tests	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Cadmium	7440439	45-70 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Cadmium	7440439	32-50 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Cadmium	7440439	1.4 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Coal combustion		Bituminous coal-fired boilers, util/commerc/industr	1	Cadmium	7440439	28 lb/10E12 Btu	Uncontrolled, based on source test	36
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Cadmium	7440439	20 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Cadmium	7440439	1.3 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Coal combustion		Bituminous coal-fired spreader stoker boilers, util/commerc/industr	1	Cadmium	7440439	21-43 lb/10E12 Btu	Uncontrolled, based on source tests	36
Coal combustion		Bituminous coal-fired spreader stoker boilers, util/commerc/industr	1	Cadmium	7440439	6.6-30 lb/10E12 Btu	Controlled with multiclone, based on measured and calculated emission factors	36
Coal combustion		Bituminous coal-fired spreader stoker boilers, util/commerc/industr	1	Cadmium	7440439	5.3-11 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Coal combustion		Bituminous coal-fired overfeed stoker boilers, util/commerc/industr	1	Cadmium	7440439	43-82 lb/10E12 Btu	Uncontrolled, based on source tests	36
Coal combustion		Bituminous coal-fired overfeed stoker boilers, util/commerc/industr	1	Cadmium	7440439	30-58 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgment	36
Coal combustion		Bituminous coal-fired overfeed stoker boilers, util/commerc/industr	1	Cadmium	7440439	11-21 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgment	36
Coal combustion		Lignite coal-fired pulverized dry bottom boilers,	1	Cadmium	7440439	48.8 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgment	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		util/commerc/Industr						
		Lignite coal-fired pulverized dry bottom boilers, util/commerc/Industr	1	Cadmium	7440439	34.6 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boilers, util/commerc/Industr	1	Cadmium	7440439	10 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boilers, util/commerc/Industr	1	Cadmium	7440439	0.38-1.8 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util/commerc/Industr	1	Cadmium	7440439	49-77 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util/commerc/Industr	1	Cadmium	7440439	35-55 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util/commerc/Industr	1	Cadmium	7440439	1.5 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/Industr	1	Cadmium	7440439	31 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/Industr	1	Cadmium	7440439	22 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/Industr	1	Cadmium	7440439	1.4 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired spreader stoker boilers, util/commerc/Industr	1	Cadmium	7440439	23-47 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired spreader stoker boilers, util/commerc/Industr	1	Cadmium	7440439	7.3-33 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired spreader stoker boilers, util/commerc/Industr	1	Cadmium	7440439	5.8-12 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		Lignite coal-fired overfeed stoker boilers, util/commerc/industr	1	Cadmium	7440439	47-90 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired overfeed stoker boilers, util/commerc/industr	1	Cadmium	7440439	33-64 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired overfeed stoker boilers, util/commerc/industr	1	Cadmium	7440439	12-23 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Cadmium	7440439	11 lb/10E12 Btu	Uncontrolled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Cadmium	7440439	7.9 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Cadmium	7440439	2.3 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Cadmium	7440439	0.09-0.40 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Cadmium	7440439	11-17 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Cadmium	7440439	8.0-12 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Cadmium	7440439	0.35 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired cyclone boilers, util/commerc/industr	1	Cadmium	7440439	7.0 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired cyclone boilers, util/commerc/industr	1	Cadmium	7440439	5.0 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired	1	Cadmium	7440439	0.32 lb/10E12 Btu	Controlled with ESP, calculated	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		pulverized wet bottom boilers, util/commerc/industr	1	Cadmium	7440439	5.2-11 lb/10E12 Btu	based on engineering judgement	36
		Anthracite coal-fired spreader stoker boiler, util/commerc/industr	1	Cadmium	7440439	1.6-7.5 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired spreader stoker boiler, util/commerc/industr	1	Cadmium	7440439	1.3-2.7 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired spreader stoker boiler, util/commerc/industr	1	Cadmium	7440439	1.3-2.7 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired overfeed stoker boiler, util/commerc/industr	1	Cadmium	7440439	11-20 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired overfeed stoker boiler, util/commerc/industr	1	Cadmium	7440439	7.5-14 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired overfeed stoker boiler, util/commerc/industr	1	Cadmium	7440439	2.7-5.2 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Chromium	7440473	1250-1570 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Chromium	7440473	721-906 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Chromium	7440473	356-447 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Chromium	7440473	102-129 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Chromium	7440473	0.0034 lb/10E12 Btu	Utility boiler emissions of Cr+6 only, controlled with fabric filter, based on source test	36
Coal combustion		Bituminous coal-fired	1	Chromium	7440473	1020-1570 lb/10E12 Btu	Uncontrolled, calculated based on	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		pulverized wet bottom boilers, util/commerc/industr	1	Chromium	7440473	588-906 lb/10E12 Btu	engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Chromium	7440473	291-477 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Chromium	7440473	84-129 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Chromium	7440473	212-1570 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired cyclone boiler, util/commerc/industr	1	Chromium	7440473	122-906 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired cyclone boiler, util/commerc/industr	1	Chromium	7440473	60-447 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired stoker boilers, util/commerc/industr	1	Chromium	7440473	17-129 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired stoker boilers, util/commerc/industr	1	Chromium	7440473	942-1570 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired stoker boilers, util/commerc/industr	1	Chromium	7440473	544-906 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired stoker boilers, util/commerc/industr	1	Chromium	7440473	248-447 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired stoker boiler, util/commerc/industr	1	Chromium	7440473	1.5-5.5 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Chromium	7440473	1500-1680 lb/10E12 Btu	Indus. & commercial boiler emis. of Cr+6 only, controlled with 2 mechan. ppt in series, source test	36
Coal combustion		Lignite coal-fired pulverized	1	Chromium	7440473	846-1080 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion			1	Chromium	7440473		Controlled with multiclone,	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		dry bottom boilers, util/commerc/industr					calculated based on engineering judgement	
		Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Chromium	7440473	428-536 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Chromium	7440473	123-154 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Chromium	7440473	253-1880 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Chromium	7440473	146-1080 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Chromium	7440473	72-536 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Chromium	7440473	21-154 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired stoker boilers, util/commerc/industr	1	Chromium	7440473	1130-1880 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired stoker boilers, util/commerc/industr	1	Chromium	7440473	767-1080 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired stoker boilers, util/commerc/industr	1	Chromium	7440473	379-536 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite pulverized dry bottom boilers, util/commerc/industr	1	Chromium	7440473	2970-3720 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite pulverized dry bottom boilers, util/commerc/industr	1	Chromium	7440473	1710-2150 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Anthracite pulverized dry bottom boilers, util/commerc/industr	1	Chromium	7440473	846-1060 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite pulverized dry bottom boilers, util/commerc/industr	1	Chromium	7440473	244-305 lb/10E12 Btu	Controlled with scrubber,	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		bottom boilers, util./commerc/industr					calculated based on engineering judgement	
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util./commerc/industr	1	Chromium	7440473	2420-3720 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util./commerc/industr	1	Chromium	7440473	1400-2150 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util./commerc/industr	1	Chromium	7440473	690-1060 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util./commerc/industr	1	Chromium	7440473	190-305 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired cyclone boilers, util./commerc/industr	1	Chromium	7440473	502-3720 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired cyclone boilers, util./commerc/industr	1	Chromium	7440473	290-2150 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired cyclone boilers, util./commerc/industr	1	Chromium	7440473	143-1060 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired cyclone boilers, util./commerc/industr	1	Chromium	7440473	41-305 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired stoker boilers, util./commerc/industr	1	Chromium	7440473	2230-3720 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired stoker boilers, util./commerc/industr	1	Chromium	7440473	1290-2150 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired stoker boilers, util./commerc/industr	1	Chromium	7440473	636-1060 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util./commerc/industr	1	Chromium	7440473	1220-1880 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized	1	Chromium	7440473	704-1080 lb/10E12 Btu	Controlled with multiclone,	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		wet bottom boilers, util/commerc/industr						
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Chromium	7440473	348-536 lb/10E12 Btu	calculated based on engineering judgement Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Chromium	7440473	100-154 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Copper	7440508	848 lb/10E12 Btu	Uncontrolled, based on source tests	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Copper	7440508	503 lb/10E12 Btu	Controlled with multiclones, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Copper	7440508	194 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Coal combustion		Bituminous coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Copper	7440508	24 lb/10E12 Btu	Controlled with scrubber, based on source tests	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Copper	7440508	573-848 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Copper	7440508	340-503 lb/10E12 Btu	Controlled with multiclones, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Copper	7440508	86 lb/10E12 Btu	Controlled with ESP, based on source tests	36
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Copper	7440508	147-848 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Copper	7440508	87-503 lb/10E12 Btu	Controlled with multiclones, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired cyclone boilers, util/commerc/industr	1	Copper	7440508	22 lb/10E12 Btu	Controlled with ESP, based on source tests	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		Bituminous coal-fired spreader stoker boilers, util//commerc/industr	1	Copper	7440508	448-987 lb/10E12 Btu	Uncontrolled, based on source tests	36
Coal combustion		Bituminous coal-fired spreader stoker boilers, util//commerc/industr	1	Copper	7440508	285-590 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired spreader stoker boilers, util//commerc/industr	1	Copper	7440508	67-148 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired overfeed stoker boiler, util//commerc/industr	1	Copper	7440508	987-1360 lb/10E12 Btu	Uncontrolled, based on calculated and measured emission factors	36
Coal combustion		Bituminous coal-fired overfeed stoker boiler, util//commerc/industr	1	Copper	7440508	590-806 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Bituminous coal-fired overfeed stoker boiler, util//commerc/industr	1	Copper	7440508	148-204 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boilers, util//commerc/industr	1	Copper	7440508	1490 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boilers, util//commerc/industr	1	Copper	7440508	884 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boilers, util//commerc/industr	1	Copper	7440508	341 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized dry bottom boilers, util//commerc/industr	1	Copper	7440508	42 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util//commerc/industr	1	Copper	7440508	1010-1490 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util//commerc/industr	1	Copper	7440508	597-884 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		Lignite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Copper	7440508	151 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Copper	7440508	258-1490 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Copper	7440508	153-884 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired cyclone boilers, util/commerc/industr	1	Copper	7440508	39 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired spreader stoker boilers, util/commerc/industr	1	Copper	7440508	787-1750 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired spreader stoker boilers, util/commerc/industr	1	Copper	7440508	465-1040 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired spreader stoker boilers, util/commerc/industr	1	Copper	7440508	118-260 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired overfeed stoker boilers, util/commerc/industr	1	Copper	7440508	1730-2390 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired overfeed stoker boilers, util/commerc/industr	1	Copper	7440508	1040-1420 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Lignite coal-fired overfeed stoker boilers, util/commerc/industr	1	Copper	7440508	260-358 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Copper	7440508	927 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Copper	7440508	550 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired	1	Copper	7440508	212 lb/10E12 Btu	Controlled with ESP, calculated	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		pulverized dry bottom boilers, util/commerc/industr	1	Copper	7440508	26 lb/10E12 Btu	based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized dry bottom boilers, util/commerc/industr	1	Copper	7440508	626-927 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Copper	7440508	372-550 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired pulverized wet bottom boilers, util/commerc/industr	1	Copper	7440508	94 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired cyclone boilers, util/commerc/industr	1	Copper	7440508	161-927 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired cyclone boilers, util/commerc/industr	1	Copper	7440508	95-550 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired cyclone boilers, util/commerc/industr	1	Copper	7440508	24 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired spreader stoker boilers, util/commerc/industr	1	Copper	7440508	490-1080 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired spreader stoker boilers, util/commerc/industr	1	Copper	7440508	290-645 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired spreader stoker boilers, util/commerc/industr	1	Copper	7440508	73-162 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired overfeed stoker boilers, util/commerc/industr	1	Copper	7440508	1080-1490 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired overfeed stoker boilers, util/commerc/industr	1	Copper	7440508	645-881 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion		Anthracite coal-fired overfeed stoker boilers, util/commerc/industr	1	Copper	7440508	162-223 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Coal combustion		Anthracite coal-fired magazine feed boiler, commercial/residential	103001	PM		4.2 pg/J heat input	Same ref. lists 21.3 pg/J for same boiler/coal type, represents both gaseous and particulate PM	116
Coal combustion		Anthracite coal-fired underfeed stoker, commercial/residential	10300102	PM		9.6 pg/J heat input	Same ref. also lists 68.4 pg/J for same boiler/coal type, represents both gaseous & particulate PM	116
Coal combustion		Anthracite coal-fired hand-stoked boiler, commercial/residential	10300103	PM		24.8 pg/J heat input	Represents both gaseous and particulate PM	116
Coal combustion		Bituminous coal-fired magazine feed, commercial/residential	103002	PM		1135 pg/J heat input	Same ref. also lists 3526 pg/J for same boiler/coal type, represents both gaseous & particulate PM	116
Coal combustion		Bituminous coal-fired underfeed stoker, commercial/residential	10300208	PM		170 pg/J heat input	Same ref. also lists 1501 pg/J for same boiler/coal type, both represent particulate & gaseous PM	116
Coal combustion		High-volatile bituminous coal-fired underfeed stoker, commerc/residential	10300208	PM		2435 pg/J heat input	Average of 6 values ranging from 363-5767 pg/J, represents both gaseous and particulate PM	116
Coal combustion		Low-volatile bituminous coal-fired underfeed stoker, commercial/residential	10300208	PM		1763 pg/J heat input	Represents both gaseous and particulate PM	116
Coal combustion		Bituminous coal-fired hand stoked boiler, commercial/industrial	10300214	PM		1843 pg/J heat input	Represents both gaseous and particulate PM	116
Coal combustion		Subbituminous coal-fired underfeed stoker, commercial/residential	10300224	PM		671 pg/J heat input	Average of 5 values ranging from 607-925 pg/J, represents both gaseous and particulate PM	116
Coal combustion		Processed lignite char underfeed stoker, commercial/residential	10300307	PM		161 pg/J heat input	Represents both gaseous and particulate PM	116
Coal combustion	49	Fly ash, coal-fired boiler	101	Tetrachlorodibenzo-p-diox ins		Not detectable	Eight locations, controls unknown, detection limit 0.002 ng/g	119

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion	49	Stack - fly ash, coal-fired boiler	101	Tetrachlorodibenzo-p-dioxins		Not detectable	Low sulfur, high ash, one location, detection limit 0.006 ng/g	119
Coal combustion	49	Flue gas, coal-fired boiler	101	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	Not detectable	Pulverized coal, low sulfur, high ash, one location, detection limits ranged 5.4 - 46.8 ng/m ³	119
Coal combustion	49	Flue gas, coal-fired boiler	101	Tetrachlorodibenzofuran, 2,3,7,8-	51207319	Not detectable	Pulverized coal, low sulfur, high ash, one location, detection limits ranged 0.86 - 41.1 ng/m ³	119
Coal combustion	4911	Utility boiler	1	Radionuclides		9 pCi U-238/g fly ash		37
Coal combustion	4911	Utility boiler	1	Radionuclides		4 pCi Th-232/g fly ash		37
Coal combustion	4911	Boiler	1	Hydrogen chloride	7647010	0.08-0.3 lbs/million Btu from coal		133
Coal combustion	4911	Boiler	1	Hydrogen chloride	7647010	0.00192 lb/ton coal burned	Control status unspecified	133
Coal combustion	4911	Boiler	1	Chlorine	7782505	1.22 kg/ton coal burned	Calculated from information in reference	133
Coal combustion	4911	Utility	101	Radionuclides		3.0 - 17.2 pCi of U-238/kg coal burned	Calculated from information in reference	35
Coal combustion	4911	Pulverized coal dry bottom utility boilers	101	Radionuclides		295.3 pCi U-238/10E6 Btu	Range 6.3 to 675.9 pCi U-238/10E6 Btu, controlled with ESP	36
Coal combustion	4911	Pulverized coal dry bottom utility boilers	101	Radionuclides		22.5 pCi U-238/10E6 Btu	Controlled with ESP and scrubber	36
Coal combustion	4911	Pulverized coal dry bottom utility boilers	101	Radionuclides		73.7 pCi U-238/10E6 Btu	Controlled with scrubber	36
Coal combustion	4911	Cyclone utility boiler	101	Radionuclides		68.0 pCi U-238/10E6 Btu	Controlled with ESP	36
Coal combustion	4911	Cyclone utility boiler	101	Radionuclides		1757.8 pCi U-238/10E6 Btu	Controlled with scrubber, range = 301.2 - 3214.3 pCi U-238/10E6 Btu	36
Coal combustion	4911	Stoker utility boiler	101	Radionuclides		13.8 pCi U-238/10E6 Btu	Controlled with ESP	36
Coal combustion	4911	Pulverized coal dry bottom utility boiler	101	Radionuclides		170.0 pCi Th-232/10E6 Btu	Controlled with ESP, range 50.3-180.7 pCi Th-232/10E6 Btu	36
Coal combustion	4911	Pulverized coal dry bottom utility boiler	101	Radionuclides		22.7 pCi Th-232/10E6 Btu	Controlled with ESP and scrubber	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion	4911	Pulverized coal dry bottom utility boiler	101	Radionuclides		36.5 pCi Th-232/10E6 Btu	Controlled with scrubber	36
Coal combustion	4911	Cyclone utility boiler	101	Radionuclides		40.8 pCi Th-232/10E6 Btu	Controlled with ESP	36
Coal combustion	4911	Cyclone utility boiler	101	Radionuclides		170.0 pCi Th-232/10E6 Btu	Controlled with scrubber, range 110.2-229.7 pCi Th-232/10E6 Btu	36
Coal combustion	4911	Stoker utility boiler	101	Radionuclides		13.8 pCi Th-232/10E6 Btu	Controlled with ESP	36
Coal combustion	4911	Pulverized coal dry bottom utility boiler	101	Radionuclides		6.55 pCi U-238/g of PM emitted	Controlled with ESP, range 3.3-9.2 pCi U-238/g of PM emitted	36
Coal combustion	4911	Pulverized coal dry bottom utility boiler	101	Radionuclides		7.1 pCi U-238/g of PM emitted	Controlled with scrubber and ESP	36
Coal combustion	4911	Pulverized coal dry bottom utility boiler	101	Radionuclides		5.6 pCi U-238/g of PM emitted	Controlled with scrubber	36
Coal combustion	4911	Pulverized coal dry bottom utility boiler	101	Radionuclides		3.0 pCi Th-232/g of PM emitted	Controlled with ESP, range 0.6-5.3 pCi Th-232/g of PM emitted	36
Coal combustion	4911	Pulverized coal dry bottom utility boiler	101	Radionuclides		7.14 pCi Th-232/g of PM emitted	Controlled with ESP and scrubber	36
Coal combustion	4911	Pulverized coal dry bottom utility boiler	101	Radionuclides		2.78 pCi Th-232/g of PM emitted	Controlled with scrubber	36
Coal combustion	4911	Pulverized coal dry bottom utility boiler	101	Radionuclides		1.5 pCi U-238/g of PM emitted	Controlled with ESP, range 0.005-3.0 pCi U-238/g PM emitted	36
Coal combustion	4911	Cyclone utility boiler	101	Radionuclides		13.9 pCi U-238/g of PM emitted	Controlled with scrubber, range 0.017-37.5 pCi U-238/g PM emitted	36
Coal combustion	4911	Cyclone utility boiler	101	Radionuclides		1.8 pCi Th-232/g of PM emitted	Controlled with ESP	36
Coal combustion	4911	Cyclone utility boiler	101	Radionuclides		2.09 pCi Th-232/g of PM emitted	Controlled with scrubber, range 1.5-2.68 pCi Th-232/g of PM emitted	36
Coal combustion	4911	Stoker utility boiler	101	Radionuclides		0.003 pCi U-238/g of PM emitted	Controlled with fabric filter	36
Coal combustion	4911	Stoker utility boiler	101	Radionuclides		0.5 pCi U-238/g of PM emitted	Controlled with ESP	36
Coal combustion	4911	Stoker utility boiler	101	Radionuclides		0.5 pCi Th-232/g of PM emitted	Controlled with ESP	36
Coal combustion	4911	Pulverized coal slag bottom utility boiler	101002	Radionuclides		0.004 pCi U-238/g of PM emitted	Controlled with mechanical ppt. and ESP	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion	4911	Utility boilers	101002	Lead	7439921	507.4 lb/10E12 Btu	Uncontrolled, assumed use bituminous coal, calculated based on engineering judgement	36
Coal combustion	4911	Utility boilers	101002	Lead	7439921	25.37 lb/10E12 Btu	Controlled, assumed use bituminous coal, calculated based on engineering judgement	36
Coal combustion	4911	Industrial and commercial boilers	102002	Lead	7439921	507.4 lb/10E12 Btu	Uncontrolled, assumed use bituminous coal, calculated based on engineering judgement	36
Coal combustion	4911	Industrial and commercial boilers	102002	Lead	7439921	223.3 lb/10E12 Btu	Controlled, assumed use bituminous coal, calculated based on engineering judgement	36
Coal combustion, commercial		Stoker boilers	103	Vanadium	7440622	58.1 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Coal combustion, commercial		Stoker boilers	103	Selenium	7782492	84.3 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Coal combustion, industrial		Pulverized boilers	102	Vanadium	7440622	33.0 pg/J	Controlled by multicyclones, based on reported emissions and engineering judgement	54
Coal combustion, industrial		Pulverized boilers	102	Vanadium	7440622	24.0 pg/J	Controlled by scrubber, based on reported emissions and engineering judgement	54
Coal combustion, industrial		Stoker boilers	102	Vanadium	7440622	24.9 pg/J	Controlled by multicyclones, based on reported emissions and engineering judgement	54
Coal combustion, industrial		Stoker boilers	102	Vanadium	7440622	58.1 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Coal combustion, industrial		Pulverized boiler	102	Selenium	7782492	48.6 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Coal combustion, industrial		Pulverized boiler	102	Selenium	7782492	41.0 pg/J	Controlled by scrubber, based on reported emissions data and engineering judgement	54
Coal combustion, industrial		Stoker boiler	102	Selenium	7782492	36.1 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion, industrial		Stoker boiler	102	Selenium	7782492	84.3 pg/J	on reported emissions data and engineering judgement	54
Coal combustion, industrial		Bituminous coal-fired	102002	Selenium	7782492	0.0016 g/kg coal	Uncontrolled, based on reported emissions data and engineering judgement	17
Coal combustion, industrial		Wet bottom, pulverized bituminous coal	10200201	POM		2.8 pg/J	Cyclones/ESP, represents both gaseous and particulate POM	114
Coal combustion, industrial		Dry bottom, horizontally-fired, pulverized bituminous coal	10200201	POM		52.1 pg/J	ESP, represents both gaseous and particulate POM	114
Coal combustion, industrial		Bituminous coal-fired pulverized dry bottom, water tube boilers	10200202	POM		1.2 pg/J	Multicyclones, represents primarily particulate POM	114
Coal combustion, industrial		Water tube, pulverized bituminous coal	10200202	POM		29.3 pg/J	ESP, represents both gaseous and particulate POM	114
Coal combustion, industrial		Spreader stoker	10200204	POM		1.3 pg/J	Multicyclones, coal type not given, represents mostly particulate POM	114
Coal combustion, industrial		Mass-fired overfeed stoker, bituminous coal	10200205	POM		14.2 pg/J	Uncontrolled, represents both gaseous and particulate POM	114
Coal combustion, industrial		Underfeed stoker	10200206	POM		84.7 pg/J	Uncontrolled, coal type not given, represents mostly particulate POM	114
Coal combustion, residential		Bituminous coal-fired boilers		Manganese	7439965	760 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Subbituminous coal-fired boilers		Manganese	7439965	1000 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Anthracite coal-fired boilers		Manganese	7439965	790 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Lignite coal-fired boilers		Manganese	7439965	4200 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from northern plains region		Manganese	7439965	1100 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion, residential		Boilers fired by coal from rocky mountain region		Manganese	7439965	2200 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from appalachian region		Manganese	7439965	860 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from interior region		Manganese	7439965	910 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Bituminous coal-fired boilers		Mercury	7439976	20.7 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Subbituminous coal-fired boilers		Mercury	7439976	12.8 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Anthractite coal-fired boilers		Mercury	7439976	12.2 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Lignite coal-fired boilers		Mercury	7439976	10.0 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from northern plains region		Mercury	7439976	18.1 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from rocky mountain region		Mercury	7439976	20.8 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from appalachian region		Mercury	7439976	16.0 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from interior region		Mercury	7439976	10.5 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Bituminous coal-fired boilers		Nickel	7440020	129 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Anthractite coal-fired boilers		Nickel	7440020	224 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Subbituminous coal-fired boilers		Nickel	7440020	73.5 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion, residential		Lignite coal-fired boilers		Nickel	7440020	116 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from northern plains region		Nickel	7440020	107 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from rocky mountain region		Nickel	7440020	90.6 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from appalachian region		Nickel	7440020	133 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from interior region		Nickel	7440020	244 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Bituminous coal-fired boilers		Arsenic	7440382	1160 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Subbituminous coal-fired boilers		Arsenic	7440382	484 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Anthracite coal-fired boilers		Arsenic	7440382	453 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Lignite coal-fired boilers		Arsenic	7440382	2380 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from northern plains region		Arsenic	7440382	525 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from rocky mountain region		Arsenic	7440382	392 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from appalachian region		Arsenic	7440382	1440 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from interior region		Arsenic	7440382	1120 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Bituminous coal-fired boilers		Beryllium	7440417	17.0 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion, residential		Subbituminous coal-fired boilers		Beryllium	7440417	13.6 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Anthrinite coal-fired boilers		Beryllium	7440417	10.4 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Lignite coal-fired boilers		Beryllium	7440417	27.5 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from northern plains region		Beryllium	7440417	13.6 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from rocky mountain region		Beryllium	7440417	15.2 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from appalachian region		Beryllium	7440417	19.5 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from interior region		Beryllium	7440417	20.9 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Bituminous coal-fired boilers		Cadmium	7440439	52.2 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Subbituminous coal-fired boilers		Cadmium	7440439	29.8 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Anthrinite coal-fired boilers		Cadmium	7440439	13.0 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Lignite coal-fired boilers		Cadmium	7440439	57.3 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from northern plains region		Cadmium	7440439	24.9 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from appalachian region		Cadmium	7440439	8.4 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from		Cadmium	7440439	375 lb/10E12 Btu	Uncontrolled, calculated based on	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion, residential		interior region Bituminous coal-fired boilers		Chromium	7440473	157 lb/10E12 Btu	engineering judgement Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Subbituminous coal-fired boilers		Chromium	7440473	156 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Anthractive coal-fired boilers		Chromium	7440473	372 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Lignite coal-fired boilers		Chromium	7440473	188 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from northern plains region		Chromium	7440473	83.3 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from rocky mountain region		Chromium	7440473	218 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from appalachian region		Chromium	7440473	157 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from interior region		Chromium	7440473	248 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Bituminous coal-fired boilers		Copper	7440508	136 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Subbituminous coal-fired boilers		Copper	7440508	148 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Anthractive coal-fired boilers		Copper	7440508	129 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Lignite coal-fired boilers		Copper	7440508	239 lb/10E12 Btu	Uncontrolled, highly variable, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from northern plains region		Copper	7440508	109 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion, residential		Boilers fired by coal from rocky mountain region		Copper	7440508	153 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from appalachian region		Copper	7440508	157 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Boilers fired by coal from interior region		Copper	7440508	160 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Coal combustion, residential		Bituminous coal-fired boilers		Vanadium	7440622	71.8 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Coal combustion, residential		Anthractite coal-fired boilers		Vanadium	7440622	66.2 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Coal combustion, residential		Lignite coal-fired boilers		Vanadium	7440622	34.4 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Coal combustion, residential		Bituminous coal-fired furnaces		Selenium	7782492	143 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Coal combustion, residential		Anthractite coal-fired furnaces		Selenium	7782492	99.3 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Coal combustion, residential		Lignite coal-fired furnaces		Selenium	7782492	51.6 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Coal combustion, residential		Residential boilers		Lead	7439921	510.0 lb/10E12 Btu	Uncontrolled, assumed use anthracite coal, calculated based on engineering judgement	36
Coal combustion, utility	4911	Utility boiler, flue gas	101	Polychlorinated dibenzo-p-dioxins		Not detectable	Four locations, 5-day composites, detection limits vary from 0.10 - 0.70 ng/g	119
Coal combustion, utility	4911	Coal-fired boiler, fly ash	101	Polychlorinated dibenzo-p-dioxins		Not detectable	Four locations, 5-day composites, detection limits vary from 0.10 - 0.70 ng/g	119
Coal combustion, utility	4911	Coal-fired boiler, fly ash	101	Polychlorinated dibenzofurans		Not detectable	Four locations, 5-day composites, detection limits vary from 0.10 - 0.70 ng/g	119

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion, utility	4911	Coal-fired boiler, flue gas	101	Polychlorinated dibenzofurans		Not detectable	0.70 ng/g	119
Coal combustion, utility	4911	Anthracite coal-fired pulverized boilers	10100101	Vanadium	7440622	39.8 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Pulverized boiler, anthracite coal	10100101	Selenium	7782492	13.0 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Anthracite coal-fired stoker boilers	10100102	Vanadium	7440622	24.9 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Stoker boiler, anthracite coal	10100102	Selenium	7782492	36.1 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Bituminous coal-fired stoker boilers	101002	Vanadium	7440622	24.9 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Stoker boiler, bituminous coal	101002	Selenium	7782492	36.1 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Vertically fired boilers, pulverized subbituminous	10100201	POM		2.80 pg/J heat input	ESP controlled, represents both particulate and gaseous POM	114
Coal combustion, utility	4911	Front wall-fired boilers, pulverized bituminous coal	10100201	POM		0.73 pg/J heat input	ESP, represents both gaseous and particulate POM	114
Coal combustion, utility	4911	Bituminous coal-fired pulverized wet bottom boilers	10100201	POM		8.0 pg/J	ESP, represents both gaseous and particulate POM	114
Coal combustion, utility	4911	Bituminous coal-fired pulverized wet bottom boilers	10100201	POM		243.1 pg/J	Wet scrubber, represents both gaseous and particulate POM	114
Coal combustion, utility	4911	Pulverized wet bottom boiler, bituminous coal	10100201	Selenium	7782492	10.5 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Bituminous coal-fired pulverized dry bottom boilers	10100202	POM		3.68 pg/J	Wet scrubber, represents both gaseous and particulate POM	114

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion, utility	4911	Bituminous coal-fired pulverized dry bottom boilers	10100202	PM		8.0 pg/J	Multiclane/ESP, represents both gaseous and particulate PM	116
Coal combustion, utility	4911	Pulverized dry bottom, vertically fired boilers	10100202	PM		0.32 - 4.2 pg/J	Uncontrolled, represents mostly particulate PM	116
Coal combustion, utility	4911	Pulverized dry bottom, vertically fired boilers	10100202	PM		0.30 - 0.70 pg/J heat input	Multiclane/ESP, represents mostly particulate PM	116
Coal combustion, utility	4911	Bituminous coal-fired pulverized dry bottom boilers	10100202	Vanadium	7440622	39.4 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	56
Coal combustion, utility	4911	Bituminous coal-fired pulverized dry bottom boilers	10100202	Vanadium	7440622	62.8 pg/J	Controlled by scrubber, based on reported emissions data and engineering judgement	56
Coal combustion, utility	4911	Bituminous coal-fired pulverized dry bottom boilers	10100202	Vanadium	7440622	110 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	56
Coal combustion, utility	4911	Bituminous coal-fired pulverized wet bottom boilers	10100202	Vanadium	7440622	32.3 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	56
Coal combustion, utility	4911	Pulverized dry bottom boiler, bituminous coal	10100202	Selenium	7782492	13.0 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	56
Coal combustion, utility	4911	Pulverized dry bottom boiler, bituminous coal	10100202	Selenium	7782492	16.3 pg/J	Controlled by scrubber, based on reported emissions data and engineering judgement	56
Coal combustion, utility	4911	Pulverized dry bottom boiler, bituminous coal	10100202	Selenium	7782492	161 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	56
Coal combustion, utility	4911	Bituminous coal-fired cyclone utility boiler	10100203	PM		0.88 pg/J heat input	ESP, represents both gaseous and particulate PM	116
Coal combustion, utility	4911	Bituminous coal-fired cyclone utility boiler	10100203	PM		7.0 pg/J heat input	Wet scrubber, represents both particulate and gaseous PM	116
Coal combustion, utility	4911	Bituminous coal-fired cyclone boilers	10100203	Vanadium	7440622	30.1 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	56

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion, utility	4911	Bituminous coal-fired cyclone boilers	10100203	Vanadium	7440622	30.0 pg/J	Controlled by scrubber, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Cyclone boiler, bituminous coal	10100203	Selenium	7782492	1.4 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Cyclone boiler, bituminous coal	10100203	Selenium	7782492	33.0 pg/J	Controlled by scrubber, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Stoker spreader, traveling grate	10100205	PM		0.054 - 0.20 pg/J heat input	Multicyclone, coal type not reported, represents mostly particulate PM	114
Coal combustion, utility	4911	Pulverized dry bottom, tangentially fired boilers	10100212	PM		0.95 pg/J heat input	Multicyclone/ESP, represents mostly particulate PM	114
Coal combustion, utility	4911	Tangentially-fired boilers, pulverized subbituminous	10100226	PM		0.30 pg/J heat input	ESP controlled, represents both particulate and gaseous PM	114
Coal combustion, utility	4911	Lignite coal-fired stoker boilers	101003	Vanadium	7440622	24.9 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Stoker boiler, lignite coal	101003	Selenium	7782492	36.1 pg/J	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Lignite coal-fired pulverized dry bottom boilers	10100301	Vanadium	7440622	17.5 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Lignite coal-fired pulverized wet bottom boilers	10100301	Vanadium	7440622	14.2 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Pulverized dry bottom boiler, lignite coal	10100301	Selenium	7782492	5.7 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Pulverized wet bottom boiler, lignite coal	10100301	Selenium	7782492	4.6 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Lignite coal-fired cyclone boilers	10100303	Vanadium	7440622	233 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coal combustion, utility	4911	Lignite coal-fired cyclone boilers	10100303	Vanadium	7440622	291 pp/j	engineering judgement Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Cyclone boiler, lignite coal	10100303	Selenium	7782492	3.1 pp/j	Controlled by ESP, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Cyclone boiler, lignite coal	10100303	Selenium	7782492	3.4 pp/j	Controlled by multicyclones, based on reported emissions data and engineering judgement	54
Coal combustion, utility	4911	Stoker spreader, lignite coal	10100306	POM		6.3 pp/j	Multicyclone, represents both gaseous and particulate POM	114
Coal refuse pile burning	1211	Refuse pile		Mercury	7439976	4.6 x 10E-9 kg/hr/Mg burning coal refuse		136
Coal refuse pile burning	1211	Refuse pile		Arsenic	7664417	4.3 x 10E-5 kg/hr/Mg burning coal refuse		136
Coal refuse pile burning	1211	Refuse pile		Hydrogen sulfide	7783064	3.0 x 10E-4 kg/hr/Mg burning coal refuse		136
Coffee bean roasting	2095	Continuous roasting	30200201	Acrolein	107028	3.8 x 10E-5 kg/kg beans roasted	Uncontrolled	140
Coffee bean roasting	2095	Continuous roasting	30200201	Acrolein	107028	1.6 x 10E-5 kg/kg beans roasted	Afterburner	140
Coffee bean roasting	2095	Continuous bean roaster	30200201	Acetaldehyde	75070	2.3 x 10E-5 kg/kg beans roasted	Uncontrolled, average of 3 tests	130
Coffee bean roasting	2095	Continuous bean roaster	30200201	Acetaldehyde	75070	8.2 x 10E-6 kg/kg beans roasted	Controlled with afterburner, average of 2 tests	130
Coke by-product plants		Entire process		Naphthalene	91203	0.00592 kg/Mg coke	Estimated from capacity and wt. percent naphthalene (8.8)	99
Coke by-product plants	4925	Cooling tower, direct water	303003	Benzene	71432	270 g/Mg coke produced	Uncontrolled, based on information in B10 for Benzene Emiss. from Coke By-product Recovery Plants	132
Coke by-product plants	4925	Cooling tower, direct water	303003	Benzene	71432	51 g/Mg coke produced	Controlled, use far bottom final cooler, 81% control efficiency	132

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coke by-product plants	4925	Cooling tower, direct water	303003	Benzene	71432	Negligible	Use wash oil final cooler, 100% efficiency	132
Coke by-product plants	4925	Cooling tower, tar bottom	303003	Benzene	71432	70 g/Mg coke produced	Uncontrolled	132
Coke by-product plants	4925	Cooling tower, tar bottom	303003	Benzene	71432	Negligible	Use wash oil final cooler, 100% efficiency	132
Coke by-product plants	4925	Light-oil condenser vent	303003	Benzene	71432	89 g/Mg coke produced	Uncontrolled	132
Coke by-product plants	4925	Light-oil condenser vent	303003	Benzene	71432	1.8 g/Mg coke produced	Coke oven gas blanketing from gas holder, 90% efficiency	132
Coke by-product plants	4925	Naphthalene separation	303003	Benzene	71432	87 g/Mg coke produced	Uncontrolled	132
Coke by-product plants	4925	Naphthalene processing	303003	Benzene	71432	20 g/Mg coke produced	Uncontrolled	132
Coke by-product plants	4925	Tar-intercepting sump	303003	Benzene	71432	95 g/Mg coke produced	Uncontrolled	132
Coke by-product plants	4925	Tar-intercepting sump	303003	Benzene	71432	1.9 g/Mg coke produced	Controlled, coke oven gas blanketing from collecting main, 98% efficiency	132
Coke by-product plants	4925	Tar dewatering	303003	Benzene	71432	21 g/Mg coke produced	Uncontrolled	132
Coke by-product plants	4925	Tar dewatering	303003	Benzene	71432	2.1 g/Mg coke produced	Controlled, wash oil scrubber, 90% efficiency	132
Coke by-product plants	4925	Tar dewatering	303003	Benzene	71432	0.42 g/Mg coke produced	Controlled, coke oven gas blanketing from collecting main, 98% efficiency	132
Coke by-product plants	4925	Tar decanter	303003	Benzene	71432	77 g/Mg coke produced	Uncontrolled	132
Coke by-product plants	4925	Tar decanter	303003	Benzene	71432	3.9 g/Mg coke produced	Controlled, coke oven gas blanketing from collecting main, 95% efficiency	132
Coke by-product plants	4925	Tar storage	303003	Benzene	71432	12 g/Mg coke produced	Uncontrolled	132
Coke by-product plants	4925	Tar storage	303003	Benzene	71432	0.26 g/Mg coke produced	Controlled, coke oven gas blanketing from collecting oven, 98% efficiency	132
Coke by-product plants	4925	Tar storage	303003	Benzene	71432	1.2 g/Mg coke produced	Controlled, wash-oil scrubber, 90% efficiency	132
Coke by-product plants	4925	Light-oil sump	303003	Benzene	71432	15 g/Mg coke produced	Uncontrolled	132

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coke by-product plants	4925	Light-oil sump	303003	Benzene	71432	0.3 g/Mg coke produced	Controlled, source enclosure, 98% efficiency	132
Coke by-product plants	4925	Light-oil storage	303003	Benzene	71432	5.8 g/Mg coke produced	Uncontrolled	132
Coke by-product plants	4925	Light-oil storage	303003	Benzene	71432	0.12 g/Mg coke produced	Controlled, coke oven gas blanketing from gas holder, 98% efficiency	132
Coke by-product plants	4925	Light-oil storage	303003	Benzene	71432	0.58 g/Mg coke produced	Wash-oil scrubber, 90% efficiency	132
Coke by-product plants	4925	BTX storage	303003	Benzene	71432	5.8 g/Mg coke produced	Uncontrolled	132
Coke by-product plants	4925	BTX storage	303003	Benzene	71432	0.12 g/Mg coke produced	Coke oven gas blanketing from gas holder, 98% efficiency	132
Coke by-product plants	4925	BTX storage	303003	Benzene	71432	0.58 g/Mg coke produced	Wash-oil scrubber, 90% efficiency	132
Coke by-product plants	4925	Benzene storage	303003	Benzene	71432	5.8 g/Mg coke produced	Uncontrolled	132
Coke by-product plants	4925	Benzene storage	303003	Benzene	71432	0.12 g/Mg coke produced	Controlled, nitrogen or natural gas blanketing system, 98% efficiency	132
Coke by-product plants	4925	Benzene storage	303003	Benzene	71432	0.58 g/Mg coke produced	Wash-oil scrubber, 90% efficiency	132
Coke by-product plants	4925	Flushing-liquor circulation tank	303003	Benzene	71432	9 g/Mg coke produced	Uncontrolled	132
Coke by-product plants	4925	Flushing-liquor circulation tank	303003	Benzene	71432	0.18 g/Mg coke produced	Coke oven gas blanketing from collecting main, 98% efficiency	132
Coke by-product plants	4925	Excess-ammonia liquor tank	303003	Benzene	71432	9 g/Mg coke produced	Uncontrolled	132
Coke by-product plants	4925	Excess-ammonia liquor tank	303003	Benzene	71432	0.18 g/Mg coke produced	Coke oven gas blanketing from collecting main, 98% efficiency	132
Coke by-product plants	4925	Wash-oil decanter	303003	Benzene	71432	3.8 g/Mg coke produced	Uncontrolled	132
Coke by-product plants	4925	Wash-oil decanter	303003	Benzene	71432	0.076 g/Mg coke produced	Controlled, 98% efficiency, coke oven gas blanketing from gas holder	132
Coke by-product plants	4925	Wash-oil circulation tank	303003	Benzene	71432	3.8 g/Mg coke produced	Uncontrolled	132
Coke by-product plants	4925	Wash-oil circulation tank	303003	Benzene	71432	0.76 g/Mg coke produced	Controlled, 98% efficiency, coke oven gas blanketing from gas holder	132

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coke by-product recovery	3312	Tar processing - decanter	30300315	POM		4.1 g/Mg coal fed to coking oven	Uncontrolled, represents both gaseous and particulate POM	114
Coke by-product recovery	3312	Tar processing - dewatering and storage	30300315	POM		0.003 g/Mg coal fed to coking ovens	Uncontrolled, represents both gaseous and particulate POM	114
Coke by-product recovery	3312	Tar processing - distillation product storage	30300315	POM		0.011 g/Mg coal fed to coking ovens	Uncontrolled, represents both gaseous and particulate POM	114
Coke manufacture	3312	Coke oven	303003	Toluene	108693	2.4 x 10E-4 lb/lb coke produced		13
Coke manufacture	3312	Wet coal charging larry car	30300302	Ammonia	7664417	0.02 lb/ton coal charged	Uncontrolled	97
Coke manufacture	3312	Coke pushing	30300303	Ammonia	7664417	0.1 lb/ton coal charged	Uncontrolled	97
Coke manufacture	3312	Door leaks	30300308	Ammonia	7664417	0.06 lb/ton coal charged	Uncontrolled	97
Coke manufacture	3312	Rotary dryer	303003	Ammonium sulfate	7783202	10 kg/Mg ammonium sulfate produced	Uncontrolled	129
Coke oven ammonium sulfate production								
Coke oven gas boiler	4925	Emission stream	10260802	Benzene	71432	0.42% by vol (1.90% by wt)	South Coast study, California, engineering judgement	132
Coking	3312	Coke oven battery	303003	Manganese	7439965	0.000013 lb/lb coal burned	Based on engineering estimates	13
Coking	3312	Charging	30300302	Coke oven emissions		0.05 to 0.55 kg/Mg coal	For 3-5 mins. uncontrolled charging	29
Coking	3312	Coke quenching	30300304	POM		1.85 g/Mg coal charged	Clean water quench	114
Coking	3312	Coke quenching	30300304	POM		613 g/Mg coal charged	Contaminated water used for quench	114
Coking	3312	Coke quenching	30300304	Benzo(a)pyrene	50328	0.0005 g/Mg coal charged		114
Coking	3312	Door leaks	30300308	POM		5524 ng/m ³	Uncontrolled, average of 4 test runs	114
Coking	3312	Door leaks	30300308	POM		1256 ng/m ³	Wet ESP	114
Coking	3312	Door leaks	30300308	POM		0.00007 g/Mg coal charged	Wet ESP	114
Coking	3312	Doors	30300308	Coke oven emissions		0.13 to 0.25 kg/Mg coal	For 30 to 75% leaking doors	29
Coking	3312	Door leaks	30300308	Benzo(a)pyrene	50328	141 ng/m ³	Uncontrolled	114
Coking	3312	Door leaks	30300308	Benzo(a)pyrene	50328	1.8 ng/m ³	Wet ESP	114
Coking	3312	Door leaks	30300308	Benzo(a)pyrene		0.002-0.03 kg/Mg coal	For 20 to 40% leaking lids	29
Coking	3312	Lids	30300314	Coke oven emissions				

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Coking	3312	Offtakes	30300314	Coke oven emissions		0.002-0.02 kg/Mg coal	For 20 to 40% leaking off-takes	29
Commercial solid waste incineration	4953	Multiple chamber with auxiliary gas burner	50100101	PM		25,014 mg/Mg waste burned	Uncontrolled, represents particulate PM	114
Commercial solid waste incineration	4953	Multiple chamber with auxiliary gas burner	50100101	Benz(a)pyrene	50328	573 mg/Mg waste burned	Uncontrolled, represents primarily particulate PM	114
Commercial solid waste incineration	4953	Single chamber	50100102	PM		2086 mg/Mg waste burned	Uncontrolled, represents particulate PM	114
Commercial solid waste incineration	4953	Single chamber incinerator	50100102	Benz(a)pyrene	50328	117 mg/Mg waste burned	Uncontrolled, represents particulate PM	114
Controlled/prescribed burning	0851	Backing fire, 0.5 kg/m ²		PM		13,982 ug/g TSP emitted	Lab tests of burning pine needles	114
Controlled/prescribed burning	0851	Backing fire, 1.5 kg/m ²		PM		6254 ug/g TSP emitted	Lab tests of burning pine needles	114
Controlled/prescribed burning	0851	Backing fire, 2.4 kg/m ²		PM		4084 ug/g TSP emitted	Lab tests of burning pine needles	114
Controlled/prescribed burning	0851	Heading fire, 0.5 kg/m ²		PM		873 ug/g TSP emitted	Lab tests of burning pine needles	114
Controlled/prescribed burning	0851	Heading fire, 1.5 kg/m ²		PM		399 ug/g TSP emitted	Lab tests of burning pine needles	114
Controlled/prescribed burning	0851	Heading fire, 2.4 kg/m ²		PM		392 ug/g TSP emitted	Lab tests of burning pine needles	114
Copper ore milling/processing	1021	Entire process	303	Copper	7440508	0.002 kg/Mg ore processed	Controlled, average of estimates for about 30 plants	53
Copper smelting	3331	Entire process	303005	Radionuclides		140 nCi U-238/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est., reverberatory furnace, no roaster	37
Copper smelting	3331	Entire process	303005	Radionuclides		140 nCi U-235/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est., reverberatory furnace, no roaster	37
Copper smelting	3331	Entire process	303005	Radionuclides		260 nCi Th-230/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est., reverberatory furnace, no roaster	37
Copper smelting	3331	Entire process	303005	Radionuclides		23 nCi Ra-226/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est., reverberatory furnace, no roaster	37
Copper smelting	3331	Entire process	303005	Radionuclides		2700 nCi Pb-210/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est.,	37

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SEC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Copper smelting	3331	Entire process	303005	Radionuclides		2700 nCi Po-210/metric ton Cu	reverberatory furnace, no roaster Controlled with ESP and acid gas cleanup plant, rough est., reverberatory furnace, no roaster	37
Copper smelting	3331	Entire process	303005	Radionuclides		180 nCi Th-232/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est., reverberatory furnace, no roaster	37
Copper smelting	3331	Entire process	303005	Radionuclides		180 nCi Ra-232/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est., reverberatory furnace, no roaster	37
Copper smelting	3331	Entire process	303005	Radionuclides		180 nCi Th-228/metric ton Cu	Controlled with ESP and acid gas cleanup plant, rough est., reverberatory furnace, no roaster	37
Copper smelting	3331	Entire process	303005	Radionuclides		950 nCi U-238/metric ton Cu	Typical control = acid gas plant, cyclone, water spray, ESP, rough estimate	39
Copper smelting	3331	Entire process	303005	Radionuclides		950 nCi U-234/metric ton Cu	Typical control = acid gas plant, cyclone, water spray, ESP, rough estimate	39
Copper smelting	3331	Entire process	303005	Radionuclides		50 nCi Th-230/metric ton Cu	Typical control = acid gas plant, cyclone, water spray, ESP, rough estimate	39
Copper smelting	3331	Entire process	303005	Radionuclides		36 nCi Ra-226/metric ton Cu	Typical control = acid gas plant, cyclone, water spray, ESP, rough estimate	39
Copper smelting	3331	Entire process	303005	Radionuclides		1500 nCi Pb-210/metric ton Cu	Typical control = acid gas plant, cyclone, water spray, ESP, rough estimate	39
Copper smelting	3331	Entire process	303005	Radionuclides		710 nCi Po-210/metric ton Cu	Typical control = acid gas plant, cyclone, water spray, ESP, rough estimate	39
Copper smelting	3331	Entire process	303005	Radionuclides		29 nCi Th-232/metric ton Cu	Typical control = acid gas plant, cyclone, water spray, ESP, rough estimate	39
Copper smelting	3331	Entire process	303005	Radionuclides		31 nCi Th-228/metric ton Cu	Typical control = acid gas plant, cyclone, water spray, ESP, rough estimate	39

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Copper sulfate production	2819	Entire process	301	Copper	7440508	1.26 kg/Mg produced	estimate	53, 97
Cotton field spraying with arsenic acid		Ground application		Arsenic	7440382	6.1 g As acid/kg As applied	Engineering judgement Range 0.9 to 16.2 g arsenic acid/kg As acid applied	7
Cotton field spraying with arsenic acid		Airplane application		Arsenic	7440382	48.8 g As acid/kg As applied	Estimated from literature data	7
Cotton ginning	0724	High pressure section	302004	Arsenic	7440382	0.64 g total elem. As/bale lint	Rough estimate, controlled with cyclone	32
Cotton ginning	0724	Unloading fan cyclone	30200401	Arsenic	7440382	0.0003 g/kg cotton ginned	For picker harvested cotton, control - cyclone	8
Cotton ginning	0724	Low pressure section	30200404	Arsenic	7440382	0.0044 g total elem. As/bale lint	Rough estimate, controlled with condenser drums or in-line filters	32
Cotton ginning	0724	Fugitives	30200410	Arsenic	7440382	0.64 g total elem. As/bale lint	Rough estimate	32
Cotton ginning	0724	Entire process	30200410	Arsenic	7440382	0.0004-0.017 g/kg cotton ginned	For stripper harvested cotton, control - cyclones & in-line filters	8
Cresol(p-) production	2865	Process - general	301	Toluene	108883	1.2 x 10E-3 lb/lb used	Engineering estimate	13
Cresol(p-) production	2865	Fugitive	301	Toluene	108883	3.0 x 10E-4 lb/lb used	Engineering estimate	13
Cresol(p-) production	2865	Storage	407036	Toluene	108883	5.0 x 10E-4 lb/lb used	Engineering estimate	13
Crude terephthalic acid production	2869	Reactor vent	30103102	Xylene	1330207	6 g/kg crude TPA produced	Uncontrolled	62
Crude terephthalic acid production	2869	Reactor vent	30103102	Acetic acid	64197	0.6 g/kg crude TPA produced	Uncontrolled	62
Crude terephthalic acid production	2869	Reactor vent	30103102	Methyl acetate	79209	8 g/kg crude TPA produced	Uncontrolled	62
Crude terephthalic acid production by air oxidation process	2869	p-Xylene storage tank vents	301031	Xylene, p-	106423	0.11 g/kg crude terephthalic acid prod.	Uncontrolled, filling vels. only, hypothetical plant operating 8760 h/yr & having 230 Gg/yr cap.	62
Crude terephthalic acid production by air oxidation process	2869	Reactor vent	30103102	Xylene, p-	106423	6 g/kg crude terephthalic acid produced	Uncontrolled, based on hypothetical plant operating 8760 h/yr and having 230 Gg/yr capacity	62

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Crude terephthalic acid production by air oxidation process	2869	Reactor vent	30103102	Xylene, p-	106423	0.16 g/kg crude terephthalic acid prod.	Contr = carb. adsorb. (97% emis. reduction), hypothetical plant oper. 8760 h/yr & 230 Gg/yr	62
Cumene production	2865	Entire process	30115601	Propylene	115071	1.7 x 10E-4 kg/kg cumene	Controlled, engineering judgment, based on ratio of propane emissions (1:2 propyl:c:propane)	88
Cumene production	2865	Benzene azeotrope drying column	30115602	Benzene	71432	0.02 g/kg cumene produced	Uncontrolled, based on hypothetical plant producing 227 Gg cumene/yr	132
Cumene production	2865	Benzene azeotrope drying column	30115602	Benzene	71432	0.001 g/kg cumene produced	Controlled, flare, 95% efficiency	132
Cumene production	2865	Catalyst mix tank scrubber	30115603	Benzene	71432	0.16 g VOC/kg cumene produced	Uncontrolled, 99.4 wt% benzene	132
Cumene production	2865	Catalyst mix tank scrubber	30115603	Benzene	71432	0.008 g VOC/kg cumene produced	Controlled, flare, 95% efficiency, 99.4 wt% benzene	132
Cumene production	2865	Wash-decanter system	30115604	Benzene	71432	0.01 g VOC/kg cumene produced	Uncontrolled, 78.4 wt% benzene	132
Cumene production	2865	Wash-decanter system	30115604	Benzene	71432	0.0005 g VOC/kg cumene produced	Controlled, flare, 95% efficiency, 78.4 wt% benzene	132
Cumene production	2865	Benzene recovery column	30115605	Benzene	71432	0.017 g/kg cumene produced	Uncontrolled	132
Cumene production	2865	Benzene recovery column	30115605	Benzene	71432	0.00085 g/kg cumene produced	Controlled, flare, 95% efficiency	132
Cumene production	2865	Storage	301157	Benzene	71432	425 g/Mg cyclohexane produced	Based on model plant with capacity of 50 Gg/yr, uncontrolled	146
Cyclohexane production by benzene hydrogenation process	2865	Storage	301157	Benzene	71432	421 g/Mg cyclohexane produced	Based on model plant with capacity of 150 Gg/yr, uncontrolled	146
Cyclohexane production by benzene hydrogenation process	2865	Storage	301157	Benzene	71432	420 g/Mg cyclohexane produced	Based on model plant with capacity of 250 Gg/yr, uncontrolled	146
Cyclohexane production by benzene hydrogenation process	2865	Storage	301157	Benzene	71432	63.6 g/Mg cyclohexane produced	Based on model plant with 50 Gg/yr capacity, controlled by internal floating-roof tanks	146
Cyclohexane production by benzene hydrogenation process	2865	Storage	301157	Benzene	71432	63.2 g/Mg cyclohexane produced	Based on model plant with 150 Gg/yr capacity, controlled by internal floating-roof tanks	146
Cyclohexane production by benzene hydrogenation process	2865	Storage	301157	Benzene	71432	63.0 g/Mg cyclohexane produced	Based on model plant with 250 Gg/yr capacity, controlled by internal floating-roof tanks	146

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
benzene hydrogenation process								
Cyclohexane production by benzene hydrogenation process	2865	Fugitive emissions	30115780	Benzene	71432	154 g/Mg cyclohexane produced	Gg/yr capacity, controlled by internal floating-roof tanks	146
Cyclohexane production by benzene hydrogenation process	2865	Fugitive emissions	30115780	Benzene	71432	51.4 g/Mg cyclohexane produced	Based on model plant with capacity of 50 Gg/yr, uncontrolled	146
Cyclohexane production by benzene hydrogenation process	2865	Fugitive emissions	30115780	Benzene	71432	7.0 g/Mg cyclohexane produced	Based on model plant with capacity of 250 Gg/yr, controlled by inspection/maintenance	146
Cyclohexane production by benzene hydrogenation process	2865	Fugitive emissions	30115780	Benzene	71432	30.8 g/Mg cyclohexane produced	Based on model plant with capacity of 250 Gg/yr, uncontrolled	146
Cyclohexane production by benzene hydrogenation process	2865	Fugitive emissions	30115780	Benzene	71432	35.0 g/Mg cyclohexane produced	Based on model plant with 50 Gg/yr capacity, controlled by inspection/maintenance	146
Cyclohexane production by benzene hydrogenation process	2865	Fugitive emissions	30115780	Benzene	71432	11.7 g/Mg cyclohexane produced	Based on model plant with 150 Gg/yr capacity, controlled by inspection/maintenance	146
Decorative chrome electroplating	34	Plating tank	30901001	Chromium	7440473	4.4 x 10E-5 g/hr/amp	Total chrome, ave. of 3 values, based on current (amperes) used, used fluorocarbon fume suppressant	135
Decorative chrome electroplating	34	Plating tank	30901001	Chromium	7440473	0.050 g/hr/m2	Total chrome, ave. of 3 values, based on surface area of tank, used fluorocarbon fume suppressant	135
Decorative chrome electroplating	34	Plating tank	30901001	Chromium	7440473	1.2 x 10E-5 g/hr/amp	Hex chrome, ave. of 3 values, based on current (amperes) used, used fluorocarbon fume suppressant	135
Decorative chrome electroplating	34	Plating tank	30901001	Chromium	7440473	0.012 g/hr/m2	Hex chrome, ave. of 3 values, based on surface area of tank, used fluorocarbon fume suppressant	135
Defoliating/densifying cotton		Drift during application	7775099	Sodium chlorate		20 lb/ton applied	Estimated	97
Degreasing operations using MC		Open top vapor degreasers	40100204	Methylene chloride	75092	0.93 kg emit./kg fresh (virgin) MC used	Uncontrolled, considers recycle, material balance	76
Degreasing operations using MC		Open top vapor degreasers	40100204	Methylene chloride	75092	0.89 kg emit./kg fresh (virgin) MC used	Controlled by refrigerated freeboard chiller, considers recycle, material balance	76

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Degreasing operations using MC		Conveyorized vapor degreaser	40100224	Methylene chloride	75092	0.96 kg emit./kg fresh (virgin) MC used	Uncontrolled, considers recycle, material balance	76
Degreasing operations using MC		Conveyorized vapor degreaser	40100224	Methylene chloride	75092	0.91 kg emit./kg fresh (virgin) MC used	Controlled by carbon adsorber or refrigerated freeboard chiller, considers recycle, material balance	76
Degreasing operations using MC		Cold cleaners	40100302	Methylene chloride	75092	0.89 kg emit./kg fresh (virgin) MC used	Uncontrolled, considers recycle, based on material balance	76
Degreasing operations using MC		Cold cleaners	40100302	Methylene chloride	75092	0.87 kg emit./kg fresh (virgin) MC used	Contr = 0.7 freeboard ratio + drainage rack w/ 15 sec. drain time, considers recycle, material balance	76
Degreasing operations using MC	7530	Carburator cleaners	40100302	Methylene chloride	75092	0.89 kg emit./kg fresh (virgin) MC used	Uncontrolled, considers recycle, material balance	76
Degreasing operations using MC	7530	Carburator cleaners	40100302	Methylene chloride	75092	0.76 kg emit./kg fresh (virgin) MC used	Controlled by water cover, considers recycle, material balance	76
Degreasing operations using PCE		Open top vapor degreasers	40100203	Perchloroethylene	127184	0.93 kg/kg of fresh (virgin) PCE used	Uncontrolled, based on material balance	76
Degreasing operations using PCE		Open top vapor degreasers	40100203	Perchloroethylene	127184	0.89 kg/kg of fresh (virgin) PCE used	Controlled by refrigerated freeboard chiller, based on material balance	76
Degreasing operations using PCE		Conveyorized vapor degreaser	40100223	Perchloroethylene	127184	0.96 kg/kg of fresh (virgin) PCE used	Uncontrolled, based on material balance	76
Degreasing operations using PCE		Conveyorized vapor degreaser	40100223	Perchloroethylene	127184	0.91 kg/kg of fresh (virgin) PCE used	Controlled by carbon adsorber or refrigerated freeboard chiller, based on material balance	76
Degreasing operations using PCE		Cold cleaners	40100304	Perchloroethylene	127184	0.78 kg/kg of fresh (virgin) PCE used	Uncontrolled, based on material balance	76
Degreasing operations using PCE		Cold cleaners	40100304	Perchloroethylene	127184	0.76 kg/kg of fresh (virgin) PCE used	Controlled by 0.7 freeboard ratio & drainage rack w/ 15 sec. drain time, based on material balance	76
Degreasing operations using TCE		Open top vapor degreasers	40100205	Trichloroethylene	79016	0.93 kg/kg fresh (virgin) TCE used	Uncontrolled, based on material balance	76
Degreasing operations using TCE		Open top vapor degreasers	40100205	Trichloroethylene	79016	0.89 kg/kg fresh (virgin) TCE used	Controlled by above or below freezing refrigerated freeboard	76

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Degreasing operations using TCE		Conveyorized vapor degreaser	40100225	Trichloroethylene	79016	0.96 kg/kg fresh (virgin) TCE used	chiller, based on material balance Uncontrolled, based on material balance	76
Degreasing operations using TCE		Conveyorized vapor degreaser	40100225	Trichloroethylene	79016	0.91 kg/kg fresh (virgin) TCE used	Controlled by carbon adsorber or refrigerated freeboard chiller, based on material balance	76
Degreasing operations using TCE		Cold cleaners	40100306	Trichloroethylene	79016	0.84 kg/kg fresh (virgin) TCE used	Uncontrolled, based on material balance	76
Degreasing operations using TCE		Cold cleaners	40100306	Trichloroethylene	79016	0.82 kg/kg fresh (virgin) TCE used	Controlled by 0.7 freeboard ratio & drainage rack w/ 15 sec. drain time, based on material balance	76
Degreasing operations using methyl chloroform		Entire process		Dioxane, 1,4-	123911	0.03 lb/ton methyl chloroform	Based on 3% wt. in methyl chloroform	93
Degreasing operations using methyl chloroform		Cold cleaner		Methyl chloroform	71556	0.86 kg/kg (fresh) virgin solvent used	Uncontrolled, considers recycle, based on material balance	102
Degreasing operations using methyl chloroform		Cold cleaner		Methyl chloroform	71556	0.84 kg/kg (fresh) virgin solvent used	Control. by 0.7 freeboard ratio + drainage rack w/ 15 sec. drain time, considers recy., mater. bal.	102
Degreasing operations using methyl chloroform		Open top vapor degreasers	40100202	Methyl chloroform	71556	0.93 kg/kg (fresh) virgin solvent used	Uncontrolled, considers recycle, based on material balance	76
Degreasing operations using methyl chloroform		Open top vapor degreasers	40100202	Methyl chloroform	71556	0.89 kg/kg (fresh) virgin solvent used	Controlled by refrigerated freeboard chiller, considers recycle, based on material balance	76
Degreasing operations using methyl chloroform		Conveyorized vapor degreaser	40100222	Methyl chloroform	71556	0.96 kg/kg (fresh) virgin solvent used	Uncontrolled, considers recycle, based on material balance	76
Degreasing operations using methyl chloroform		Conveyorized vapor degreaser	40100222	Methyl chloroform	71556	0.91 kg/kg (fresh) virgin solvent used	Controlled by carbon adsorber or refig. freeboard chiller, considers recycle, material balance	76
Degreasing operations using trichlorotrifluoroethane		Cold cleaner		Trichlorotrifluoroethane	761131	0.88 kg/kg fresh (virgin) solvent used	Uncontrolled, considers recycle, based on material balance	102
Degreasing operations using trichlorotrifluoroethane		Cold cleaner		Trichlorotrifluoroethane	761131	0.86 kg/kg fresh (virgin) solvent used	Contr. = 0.7 freeboard ratio + drainage rack w/ 15 sec. drain time, considers recycle, mater. balance	102

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Degreasing operations using trichlorotrifluoroethane		Open top vapor degreasers	40100207	Trichlorotrifluoroethane	761131	0.93 kg/kg fresh (virgin) solvent used	Uncontrolled, considers recycle, based on material balance	76
Degreasing operations using trichlorotrifluoroethane		Open top vapor degreasers	40100207	Trichlorotrifluoroethane	761131	0.89 kg/kg fresh (virgin) solvent used	Controlled by refrig. freeboard chiller, considers recycle, based on material balance	76
Degreasing operations using trichlorotrifluoroethane		ConveyORIZED vapor degre.	40100208	Trichlorotrifluoroethane	761131	0.96 kg/kg fresh (virgin) solvent used	Uncontrolled, considers recycle, based on material balance	76
Degreasing operations using trichlorotrifluoroethane		ConveyORIZED vapor degreaser	40100208	Trichlorotrifluoroethane	761131	0.91 kg/kg fresh (virgin) solvent used	Controlled by carbon adsorber or refrig. freeboard chiller, considers recycle, material balance	76
Demolition and renovation of buildings		Waste movement to temp. storage and transfer to trucks		Asbestos	1332214	1.4 x 10-4 kg/cubic meter waste	Best estimate of uncontrolled emission, range 1.5 x 10-6 to 4.1 x 10-2	100
Dichloroaniline production	2869	General	301	Nitrobenzene	98953	1.5 x 10E-3 lb/lb used	Based on engineering estimate	13
Dichloroaniline(3,4) production	2865	Process emission		Dichlorobenzene, 1,2-	95501	1.05 kg/Mg 3,4-dichloroaniline produced	General estimates, no specifics on control	48
Dichloroaniline(3,4) production	2865	Storage emissions		Dichlorobenzene, 1,2-	95501	0.15 kg/Mg 3,4-dichloroaniline produced	General estimates, no specifics on control	48
Dichloroaniline(3,4) production	2865	Fugitive emission		Dichlorobenzene, 1,2-	95501	0.30 kg/Mg 3,4-dichloroaniline produced	General estimates, no specifics on control	48
Dichlorobenzene(1,2) production	2865	Process emissions	301301	Dichlorobenzene, 1,2-	95501	2.32 kg/Mg 1,2-dichlorobenzene produced	Based on data from site visit, no specifics on controls, likely to be high value	48
Dichlorobenzene(1,2) production	2865	Storage emissions	301301	Dichlorobenzene, 1,2-	95501	0.47 kg/Mg 1,2-dichlorobenzene produced	Based on data from site visit, no specifics on controls, likely to be high value	48
Dichlorobenzene(1,2) production	2865	Fugitive emissions	301301	Dichlorobenzene, 1,2-	95501	0.76 kg/Mg 1,2-dichlorobenzene produced	Based on data from site visit, no specifics on controls, likely to be high value	48
Dichlorobenzene(1,4) production	2865	Process emissions	301301	Dichlorobenzene, 1,4-	106467	0.00581 kg/kg product produced	Estimate based on data from site visits, specifics on control not available, likely to be high value	48
Dichlorobenzene(1,4) production	2865	Storage emissions	301301	Dichlorobenzene, 1,4-	106467	0.00041 kg/kg product produced	Estimate based on data from site visits, specifics on control not available, likely to be high value	48

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Dichlorobenzene(1,4) production	2865	Fugitive emissions	301301	Dichlorobenzene, 1,4-	106467	0.00102 kg/kg product produced	Estimate based on data from site visits, specifics on control not available, likely to be high value	48
Die-casting production using zinc-based alloys	3369	Entire process	304050	Zinc	7440666	10 lb/ton of zinc processed	Based on information obtained from die-casting companies in 1989	66
Dimethyl terephthalate production	2869	Process emissions	30103101	Xylene	1330207	6.8 kg/Mg product	Based on site visit data, Hydrosience, Inc.	67
Dimethyl terephthalate production	2869	Storage emissions	30103101	Xylene	1330207	0.14 kg/Mg product	Based on site visit data, Hydrosience, Inc.	67
Dimethyl terephthalate production	2869	Fugitive emissions	30103101	Xylene	1330207	0.14 kg/Mg product	Based on site visit data, Hydrosience, Inc.	67
Dimethyl terephthalate production by methanol esterification	2869	Recycled and fresh methanol storage tank vents	301031	Triethanol	67561	0.13 g/kg dimethyl terephthalate prod.	Uncontrolled, based on hypothetical plant operating 8760 h/yr and having 269 Gg/yr capacity	62
Dimethyl terephthalate production by methanol esterification	2869	Recycled and fresh methanol storage tank vents	301031	Triethanol	67561	0.013 g/kg dimethyl terephthalate prod.	Controlled by water absorber, based on hypothetical plant operating 8760 h/yr & having 269 Gg/yr cap	62
Dinitrobenzene production	2869	General	301	Nitrobenzene	98953	1.5 x 10E-3 lb/lb used	Based on engineering estimate	13
Dispersion polyvinyl chloride production	2821	Fugitives	30101801	Vinyl chloride	75014	1.13 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Dispersion polyvinyl chloride production	2821	Reactor opening loss	30101801	Vinyl chloride	75014	0.15 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Dispersion polyvinyl chloride production	2821	Stripper loss	30101801	Vinyl chloride	75014	1.23 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Dispersion polyvinyl chloride production	2821	Monomer recovery vent	30101801	Vinyl chloride	75014	0.34 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Dispersion polyvinyl chloride production	2821	Slurry blend tank	30101801	Vinyl chloride	75014	0.34 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Dispersion polyvinyl chloride production	2821	Area emissions - dryer, silo, bagger, loading	30101801	Vinyl chloride	75014	2.41 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Dispersion polyvinyl chloride production	2821	Reactor safety valve vents	30101801	Vinyl chloride	75014	0.22 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Dispersion polyvinyl chloride production	2821	Process water	30101801	Vinyl chloride	75014	0.025 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Dodecylphenol production	2869	General	301	Phenol	108952	8.0 x 10E-4 lb/lb used	Engineering judgement	13
Dodecylphenol production	2869	Fugitive	301	Phenol	108952	1.9 x 10E-4 lb/lb used	Engineering judgement	13
Dodecylphenol production	2869	Storage	407084	Phenol	108952	1.0 x 10E-5 lb/lb used	Engineering judgement	13
Drinking water chlorination	4941	Evaporation		Chloroform	67663	0.041 kg/1026 liters water chlorinated		164
Drum and barrel furnace	49	Stack	5	Tetrachlorodibenzo-p-dioxins		1.2 ng/dscm @ 3% O2	Tier 4 stack test sampling, except the 2,3,7,8-isomer	115
Drum and barrel furnace	49	Stack	5	Pentachlorodibenzo-p-dioxins		0.72 ng/dscm @ 3% O2	Tier 4 stack test sampling	115
Drum and barrel furnace	49	Stack	5	Hexachlorodibenzo-p-dioxins		0.79 ng/dscm @ 3% O2	Tier 4 stack test sampling	115
Drum and barrel furnace	49	Stack	5	Heptachlorodibenzo-p-dioxins		1.3 ng/dscm @ 3% O2	Tier 4 stack test sampling	115
Drum and barrel furnace	49	Stack	5	Octachlorodibenzo-p-dioxins		0.92 ng/dscm @ 3% O2	Tier 4 stack test sampling	115
Drum and barrel furnace	49	Stack	5	Tetrachlorodibenzofurans		14 ng/dscm @ 3% O2	Tier 4 stack test sampling, except the 2,3,7,8-isomer	115
Drum and barrel furnace	49	Stack	5	Pentachlorodibenzofurans		6.2 ng/dscm @ 3% O2	Tier 4 stack test sampling	115
Drum and barrel furnace	49	Stack	5	Hexachlorodibenzofurans		3.0 ng/dscm @ 3% O2	Tier 4 stack test sampling	115
Drum and barrel furnace	49	Stack	5	Heptachlorodibenzofurans		2.0 ng/dscm @ 3% O2	Tier 4 stack test sampling	115
Drum and barrel furnace	49	Stack	5	Octachlorodibenzofurans		0.55 ng/dscm @ 3% O2	Tier 4 stack test sampling	115
Drum and barrel furnace	49	Stack	5	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	0.05 ng/dscm @ 3% O2	Tier 4 stack test sampling	115
Drum and barrel furnace	49	Stack	5	Tetrachlorodibenzofuran, 2,3,7,8-	51207319	0.90 ng/dscm @ 3% O2	Tier 4 stack test sampling	115
Dry cell battery manufacturing	369	Ore grinding	304	Manganese	7439965	30 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SEC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Dry cell battery manufacturing	369	One grinding	304	Manganese	7439965	0.03 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Dry cell battery manufacturing	369	Screening	304	Manganese	7439965	1.0 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Dry cell battery manufacturing	369	Screening	304	Manganese	7439965	0.001 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Dry cell battery manufacturing	369	Storage and handling	304	Manganese	7439965	4.4 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Dry cell battery manufacturing	369	Storage and handling	304	Manganese	7439965	0.0044 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Dry chlorinated paraffin production	2869	All sources		Carbon tetrachloride	56235	9.4 Mg/yr	Only one plant in U.S.	134
Dry cleaning, perchloroethylene	721	Process emissions, transfer or dry-to-dry machine	40100101	Perchloroethylene	127184	5.26 kg/100 kg clothes cleaned	Uncontrolled, based on material balance, applies to coin-operated, commercial, & industrial sectors	156
Dry cleaning, perchloroethylene	721	Process emissions, transfer or dry-to-dry machine	40100101	Perchloroethylene	127184	1.58 kg/100 kg clothes cleaned	Control. by refrig. condenser, material balance, applies to coin-oper./commer./& indust. sectors	156
Dry cleaning, perchloroethylene	721	Process emissions, transfer or dry-to-dry machine	40100101	Perchloroethylene	127184	0.26 kg/100 kg clothes cleaned	Control. by carbon adsorber, material balance, applies to coin-oper./commer./& indust. sectors	156
Dry cleaning, perchloroethylene	721	Fugitive emissions, transfer machine	40100101	Perchloroethylene	127184	4.12 kg/100 kg clothes cleaned	Uncontrolled, based on material balance, applies to coin-operated, commercial, & industrial sectors	156
Dry cleaning, perchloroethylene	721	Fugitive emissions, dry-to-dry machine	40100101	Perchloroethylene	127184	2.06 kg/100 kg clothes cleaned	Uncontrolled, based on material balance, applies to coin-operated, commercial, & industrial sectors	156
Dry cleaning, trichlorotrifluoroethane	7216	Washer/dryer/still	40100106	Trichlorotrifluoroethane	761131	0 kg/100 kg clothes cleaned	Based on typical refrigeration system at CFC drycleaning plant	97
Dry cleaning, trichlorotrifluoroethane	7216	Cartridge filter disposal	40100106	Trichlorotrifluoroethane	761131	1 kg/100 kg clothes cleaned	Based on tests and literature	97

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Dye cleaning, trichlorotrifluoroethane	7216	Still residue disposal	40100106	Trichlorotrifluoroethane	761131	0.5 kg/100 kg clothes cleaned	Based on tests and literature	97
Dye cleaning, trichlorotrifluoroethane	7216	Fugitives	40100106	Trichlorotrifluoroethane	761131	1-3 kg/100 kg clothes cleaned	Based on tests and literature	97
Dye synthesis	2865	Process emissions	301121	Dichlorobenzene, 1,2-	95501	0.40 kg/Mg dye produced	General estimate, no specifics on controls	48
Dye synthesis	2865	Storage emissions	301121	Dichlorobenzene, 1,2-	95501	0.05 kg/Mg dye produced	General estimate, no specifics on controls	48
Dye synthesis	2865	Fugitive emissions	301121	Dichlorobenzene, 1,2-	95501	0.05 kg/Mg dye produced	General estimate, no specifics on controls	48
Electric arc furnace, chrome ore/lime melt	3313	Furnace	30300704	Chromium	7440473	0.63 kg/Mwhr	Uncontrolled, as total chromium, assumes chromium is 15% of PM by weight	161
Electric arc furnace, ferrochrome-silicon	3313	Furnace	30300704	Chromium	7440473	0.5 kg/Mwhr	Average of 0.2-0.78 range, as total Cr uncontrolled, assumes Cr is 0.4-1.4% of PM emissions by wt.	161
Electric arc furnace, ferrosilicon	3313	Open furnace	30300601	Chromium	7440473	0.0036 kg/Mwhr	Scrubber, as total chromium, assumes 0.4% total controlled PM is chromium	161
Electric arc furnace, ferrosilicon	3313	Open furnace	30300601	Chromium	7440473	0.00081 kg/Mwhr	Fabric filter, controlled chromium, assumes 0.4% total controlled PM is chromium	161
Electric arc furnace, ferrosilicon	3313	Closed furnace	30300702	Chromium	7440473	0.00002 kg/Mwhr	Scrubber, as total chromium, assumes chromium is 0.4% of controlled PM	161
Electric arc furnace, high-carbon ferrochrome	3313	Open furnace	303006	Chromium	7440473	0.06 kg/Mwhr	Scrubber, as total chromium, assumes 14% PM is chromium by weight	161
Electric arc furnace, high-carbon ferrochrome	3313	Open furnace	303006	Chromium	7440473	0.0022 kg/Mwhr	Fabric filter, as total chromium, assumes 14% PM is chromium by weight	161
Electric arc furnace, high-carbon ferrochrome	3313	Open furnace	303006	Chromium	7440473	0.04 kg/Mwhr	ESP, as total chromium, assumes 14% PM is chromium by weight	161
Electric arc furnace, high-carbon ferrochrome	3313	Furnace	30300704	Chromium	7440473	3.9 kg/Mwhr	Uncontrolled, as total chromium,	161

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
high-carbon ferrochrome and charge Cr								
Electric utility industry	4911	Fresh water cooling towers with drift loss range of 0.1 to 0.2%	1	Nickel	7440020	16 pg/J heat input to power plant	assumes chromium is 14% of PM by weight Uncontrolled, based on source tests	110
Electric utility industry	4911	Fresh water cooling towers with drift loss range of 0.002 to 0.005%	1	Nickel	7440020	0.34 pg/J heat input to power plant	Uncontrolled, based on source tests	110
Electricity generation	4911	Cooling towers - once through systems		Chloroform	67663	0.41 kg/10E9 liters cooling water	Uncontrolled	164
Electricity generation	4911	Cooling towers - recirculating systems		Chloroform	67663	0.75 kg/10E6 liters cooling water	Uncontrolled	164
Electro-deposition	3471	Entire process		Nickel	7440020	0.000225 g/hr/amp	Value is for striking, can be used for plating, measured factor	92
Electroplating	3471	Plating tank		Cadmium	7440439	5.0 x 10E-5 g/hr/amp	Uncontrolled	147
Electroplating	3471	Entire process		Cadmium	7440439	0.00005 g/hr/amp	Uncontrolled, measured	92
Elemental phosphorus production	1475	Non-calciner stack	305019	Radionuclides		6.3 nCi/metric ton phos. rock processed	Rough est., stacks emit 0.25 kg PM/metric ton phos. rock processed	37
Elemental phosphorus production	1475	Calciner stack	30501905	Radionuclides		6.3 nCi/metr. ton phos. rock processed	Rough est, calciner control. w/ low energy scrub., emit. 0.25 kg PM/metr. ton rock proc.	37
Elemental phosphorus production	1475	Calciner stack	30501905	Radionuclides		25 uCi Rn-222/Mg phos. rock processed	Rough est, calciner control. w/ low energy scrub., emit. 0.25 kg PM/Mg rock processed	37
Elemental phosphorus production	1475	Calciner stack	30501905	Radionuclides		1.3 uCi Pb-210/Mg phos rock processed	Rough est, calciner control. w/ low energy scrub., emit. 0.25 kg PM/Mg rock processed	37
Elemental phosphorus production	1475	Calciner stack	30501905	Radionuclides		2.5 uCi Po-210/Mg phos rock processed	Rough est, calciner control. w/ low energy scrub., emit. 0.25 kg PM/Mg rock processed	37
Emissions from a typical service station	5541	Automobile refueling displacement losses	406004	Benzene	71432	0.8 mg/liter gasoline	Controlled, based on benz./vapor ratio of 0.006 typical bulk plt w/ gas thruput of 19,000 l/day	132
Emissions from a typical	5541	Automobile refueling	40600401	Benzene	71432	7.9 mg/liter gasoline	Uncontrolled, based on benz./vapor	132

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
service station		displacement losses					ratio of 0.006 typical bulk pit w/ gas throughput of 19,000 l/day	
Emissions from a typical service station	5541	Spillage	40600402	Benzene	71432	0.5 mg/liter gasoline	Controlled, based on benz./vapor ratio of 0.006 typical bulk pit w/ gas throughput of 19,000 l/day	132
Energy production		Bituminous coal burning-boiler	1	Arsenic	7440382	1190 mg/kg of flyash	680-1700 mg/kg of flyash	3
Epichlorohydrin production	2869	Process vents	301305	Epichlorohydrin	106898	0.00047 g/kg epichlorohydrin produced	Controlled, based on ratio of nationwide emis. totals & nationwide annual production rate	109
Epichlorohydrin production	2869	Storage facilities (including storage tanks, transfer operations, etc.)	301305	Epichlorohydrin	106898	0.15 g/kg epichlorohydrin produced	Control status unspecified, based on ratio of nationwide emis. totals & nationwide annual prod. rate	109
Epichlorohydrin production	2869	Fugitive sources	30130580	Epichlorohydrin	106898	0.62 g/kg epichlorohydrin produced	Uncontrolled, based on SOCM VOC emission factors	109
Epichlorohydrin production by hydrochlorination	2869	Separation	30130501	Epichlorohydrin	106898	1.5 g/kg produced	Control unclear, based on mass balance and testing	95
Epichlorohydrin production by hydrochlorination	2869	Absorption	30130501	Allyl chloride	10751	2.0 g/kg produced	Control unclear, based on mass balance and testing	95
Epichlorohydrin production by hydrochlorination	2869	Separation	30130501	Allyl chloride	10751	2.0 g/kg produced	Control unclear, based on mass balance and testing	95
Epichlorohydrin production by hydrochlorination	2869	Separation	30130501	Hydrogen chloride	7647010	0.0005 g/kg produced	Control unclear, based on mass balance and testing	95
Epichlorohydrin production by hydrochlorination	2869	Absorption	30130501	Chlorine	7782505	0.0005 g/kg produced	Control unclear, based on mass balance and testing	95
Epichlorohydrin production by hydrochlorination	2869	Separation	30130501	Chlorine	7782505	0.0005 g/kg produced	Control unclear, based on mass balance and testing	95
Epichlorohydrin production by hydrochlorination	2869	Separation	30130501	Trichloropropane	7789891	0.50 g/kg produced	Control unclear, based on mass balance and testing	95
Epichlorohydrin production by hydrochlorination	2800	Process vents	301	Epichlorohydrin	106898	0.56 g/kg of epichlorohydrin used	Based on aggregate emissions and throughput estimates, represents no particular facility	109
Epichlorohydrin use as a feedstock in batch processes								
Ethyl chloride production by hydrochlorination	2869	Separation	301	Ethyl chloride	75003	2.5 g/kg produced	Control uncertain, based on mass balance and tests	95

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Ethyl chloride production by hydrochlorination	2869	Separation	301	Dichloroethane	75343	6.0 g/kg produced	Control uncertain, based on mass balance and tests	95
Ethyl chloride production by hydrochlorination	2869	Separation	301	Hydrogen chloride	7647010	0.0005 g/kg produced	Control uncertain, based on mass balance and tests	95
Ethyl chloride production by hydrochlorination	2869	Separation	301	Chlorine	7782505	0.0005 g/kg produced	Control uncertain, based on mass balance and tests	95
Ethyl chloride production by hydrochlorination of ethanol	2869	Process	30112515	Ethyl chloride	75003	0.00292 kg/kg produced	Control status unclear, based on plant producing ethyl chloride by hydrochlorination of ethylene	65
Ethyl chloride production by hydrochlorination of ethanol	2869	Fugitive	30112515	Ethyl chloride	75003	29,606 kg/yr	Reported as very conservative estimate, based on SOCM emission factors	65
Ethyl chloride production by hydrochlorination of ethylene	2869	Process vents	30112515	Ethylene dichloride	107062	9.45 kg/Mg ethyl chloride produced	Control status unspecified, aggregate estimate based on national emissions and production estimates	51
Ethyl chloride production by hydrochlorination of ethylene	2869	Process	30112515	Ethyl chloride	75003	0.00292 kg/kg produced	Control status unclear, based on Texas ACB Emission Inventory data for one source	65
Ethyl chloride production by hydrochlorination of ethylene	2869	Fugitive	30112515	Ethyl chloride	75003	29,606 kg/yr	Reported as very conservative estimate, based on SOCM emission factors	65
Ethylbenzene production	2865	Process - general	30116901	Xylene	1330207	1.0 x 10E-4 lb/lb xylene used	Estimated	13
Ethylbenzene production	2865	Fugitive	30116980	Xylene	1330207	5.0 x 10E-5 lb/lb xylene used	Estimated	13
Ethylbenzene production	2865	Storage	407036	Xylene	1330207	5.0 x 10E-5 lb/lb xylene used	Estimated	13
Ethylbenzene/styrene production	2865	Atmospheric/pressure column vents	301169	Benzene	71432	1.2 g/kg ethylbenzene produced	Uncontrolled, based on model plant with capacity of 300 million kg/yr	132
Ethylbenzene/styrene production	2865	Atmospheric/pressure column vents	301169	Benzene	71432	0.012-0.48 g/kg ethylbenz/styrene prod	Controlled, flare 60-99% efficiency, based on model plant with capacity of 300 million kg/yr	132
Ethylbenzene/styrene production	2865	Secondary emissions	301169	Benzene	71432	0.067 g/kg ethylbenz/styrene produced	Uncontrolled, based on model plant with capacity of 300 million kg/yr	132
Ethylbenzene/styrene	2865	Benzene/toluene vacuum vent	301169	Benzene	71432	3.0 g/kg ethylbenz/styrene	Uncontrolled, model plant with	132

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
production						produced	capacity of 300 million kg/yr	
Ethylbenzene/styrene production	2865	Benzene/toluene vacuum vent	301169	Benzene	71432	0.03-1.2 g/kg ethylbenz/styrene produced	Controlled, flare 60-99% efficiency, model plant with capacity of 300 million kg/yr	132
Ethylbenzene/styrene production	2865	Other vacuum vents	301169	Benzene	71432	0.05 g/kg ethylbenz/styrene produced	Uncontrolled, model plant with capacity of 300 million kg/yr	132
Ethylbenzene/styrene production	2865	Other vacuum vents	301169	Benzene	71432	0.0005-0.002 g/kg ethylbenz/styr prod	Controlled, flare 60-99% efficiency, model plant with capacity of 300 million kg/yr	132
Ethylbenzene/styrene production	2865	Hydrogen separation tank	301169	Benzene	71432	0.003 g/kg ethylbenz/styrene produced	Uncontrolled, model plant with capacity of 300 million kg/yr	132
Ethylbenzene/styrene production	2865	Hydrogen separation tank	301169	Benzene	71432	0.00003-0.0012g/kg ethylbenz/styren prod	Controlled, 60-99% efficiency, flare, model plant with capacity of 300 million kg/yr	132
Ethylbenzene/styrene production	2865	Storage and handling	301169	Benzene	71432	0.57 g/kg ethylbenz/styrene produced	Uncontrolled, model plant with capacity of 300 million kg/yr	132
Ethylbenzene/styrene production	2865	Storage and handling	301169	Benzene	71432	0.57 g/kg ethylbenz/styrene produced	Uncontrolled, model plant with capacity of 300 kg/yr	132
Ethylbenzene/styrene production	2865	Storage and handling	301169	Benzene	71432	0.086 g/kg ethylbenz/styrene produced	Controlled, floating roof, 85% efficiency, model plant with capacity of 300 million kg/yr	132
Ethylbenzene/styrene production	2865	Storage and handling	301169	Benzene	71432	0.00057 g/kg ethylbenz/styrene produced	Controlled, vented to flare, 99% efficiency, model plant with capacity of 300 million kg/yr	132
Ethylbenzene/styrene production	2865	Storage and handling	301169	Benzene	71432	0.114 g/kg ethylbenz/styrene produced	Controlled, refrigerated vent condenser, 80% efficiency, model plant w/ capac. of 300 million kg/yr	132
Ethylbenzene/styrene production	2865	Benzene/toluene vacuum column	30116901	Styrene	100425	0.0365 kg/Mg EB-S	Control status unclear	96
Ethylbenzene/styrene production	2865	Nonbenzene/toluene vacuum columns	30116901	Styrene	100425	0.0164 kg/Mg EB-S	Control status unclear	96
Ethylbenzene/styrene production	2865	Alkylation reactor area vents	30116902	Benzene	71432	0.3 g/kg ethylbenz/styrene produced	Uncontrolled, for ethylbenzene production, based on model plant capacity of 300 million kg/yr	132

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SEC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Ethylbenzene/styrene production	2865	Alkylation reactor area vents	30116902	Benzene	71432	0.0003 g/kg ethylbenz/styrene produced	Controlled, process heater 99+% efficiency, based on model plant capacity of 300 million kg/yr	132
Ethylbenzene/styrene production	2865	Fugitive emissions	30116980	Benzene	71432	0.11 g/kg ethylbenz/styrene produced	Uncontrolled, model plant with capacity of 300 million kg/yr	132
Ethylbenzene/styrene production	2865	Fugitive emissions	30116980	Benzene	71432	0.029 g/kg ethylbenz/styrene produced	Controlled, detection and correction, 74% efficiency, model plant with capacity of 300 million kg/yr	132
Ethylene amine production	2869	Entire process	301034	Ethylene dichloride	107062	9.09 kg/Mg ethylene amine produced	Facilities using typical controls for 1976, aggregate est. based on national emis. & produc. est.	51
Ethylene dichloride production	2869	Process	301125	Ethyl chloride	75003	3.25 x 10E-8 kg/kg EDC produced	Based on Texas ACB data for one source, partially controlled	65
Ethylene dichloride production	2869	Fugitive	30112509	Ethyl chloride	75003	4.77 x 10E-6 kg/kg EDC produced	Based on Texas ACB data for one source	65
Ethylene dichloride production - balanced process	2869	Column vents	301125	Ethylene dichloride	107062	3.00 kg/Mg of EDC produced	Uncontrolled, based on hypothetical plant with total EDC production capacity of 400,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Storage vents, in-process	301125	Ethylene dichloride	107062	0.0149 kg/Mg of EDC produced	Uncontrolled, based on hypothetical plant with total EDC production capacity of 400,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Storage vents, produced	301125	Ethylene dichloride	107062	0.0733 kg/Mg of EDC produced	Uncontrolled, based on hypothetical plant with total EDC production capacity of 430,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Process fugitive	301125	Ethylene dichloride	107062	0.265 kg/Mg of EDC produced	Uncontrolled, based on hypothetical plant with total EDC production capacity of 400,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Secondary wastewater biotreatment	301125	Ethylene dichloride	107062	0.002-0.06 kg/Mg of EDC produced	Uncontrolled, based on biotreater emission data reported by two EDC production facilities	51
Ethylene dichloride	2869	Column vents	301125	Ethylene dichloride	107062	<0.0600 kg/Mg EDC produced	Controlled by thermal oxidizer,	51

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
production - balanced process								
Ethylene dichloride production - balanced process	2869	Storage vents, in-process	301125	Ethylene dichloride	107062	<0.0003 kg/Mg EDC produced	hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Storage vents, in-process	301125	Ethylene dichloride	107062	0.0022 kg/Mg EDC produced	Controlled by thermal oxidizer, hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Storage vents, product	301125	Ethylene dichloride	107062	<0.0015 kg/Mg EDC produced	Controlled by refrig. condens., based on hypothetical plant w/ total EDC produc. capacity of 400,000	51
Ethylene dichloride production - balanced process	2869	Storage vents, product	301125	Ethylene dichloride	107062	0.0110 kg/Mg EDC produced	Controlled by thermal oxidizer, hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Process fugitive	301125	Ethylene dichloride	107062	0.106 kg/Mg EDC produced	Controlled by refrig. condens., hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Column vents	301125	Carbon tetrachloride	56235	0.14 kg/Mg EDC produced	Major leak detection and correction, hypothetical plant w/ total EDC produc. cap. of 400,000 Mg/yr	163
Ethylene dichloride production - balanced process	2869	Column vents	301125	Carbon tetrachloride	56235	<2.8 x 10E-3 kg/Mg EDC produced	Uncontrolled	163
Ethylene dichloride production - balanced process	2869	Oxychlorination, air process, absorber/stripper	30112501	Ethylene dichloride	107062	3.24-3.58 kg/Mg of EDC produced	Thermal oxidizer	51
Ethylene dichloride production - balanced process	2869	Oxychlorination, air process, refrigerated condenser	30112501	Ethylene dichloride	107062	2.4 kg/Mg of EDC produced	Uncontrolled, based on hypothetical plant with total EDC production capacity of 400,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Oxychlorination, oxygen process	30112501	Ethylene dichloride	107062	0.462 kg/Mg of EDC produced	Uncontrolled, based on hypothetical plant with total EDC production capacity of 400,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Oxychlorination, air process, absorber/stripper	30112501	Ethylene dichloride	107062	<0.0048 kg/Mg EDC produced	Controlled by thermal oxidizer, hypothetical plant w/ total EDC	51

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Ethylene dichloride production - balanced process	2869	Oxychlorination, air process, absorber/stripper	30112501	Ethylene dichloride	107062	<0.280 kg/Mg EDC produced	produc. capacity of 400,000 Mg/yr Controlled by catalytic oxidizer, hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Oxychlorination, air process, refrigerated condenser	30112501	Ethylene dichloride	107062	<0.0480 kg/Mg EDC produced	Controlled by thermal oxidizer, hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Oxychlorination, oxygen process	30112501	Ethylene dichloride	107062	<0.0092 kg/Mg EDC produced	Controlled by thermal oxidizer, hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Oxychlorination, oxygen process	30112501	Ethylene dichloride	107062	0.0693-0.17 kg/Mg EDC produced	Controlled by refrig. condens., hypothetical plant w/ total EDC produc. capacity of 400,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Oxychlorination vent - air process	30112501	Carbon tetrachloride	56235	1.2 kg/Mg EDC produced	Uncontrolled, high value of range (0.29-1.2)	163
Ethylene dichloride production - balanced process	2869	Oxychlorination vent - air process	30112501	Carbon tetrachloride	56235	2.4 x 10E-2 kg/Mg EDC produced	Thermal oxidizer, high value of range (5.8 x 10E-3 - 2.4 x 10E-2)	163
Ethylene dichloride production - balanced process	2869	Oxychlorination vent - oxygen process	30112501	Carbon tetrachloride	56235	0.18 kg/Mg EDC produced	Uncontrolled, high value of range (0.044-0.18)	163
Ethylene dichloride production - balanced process	2869	Oxychlorination vent - oxygen process	30112501	Carbon tetrachloride	56235	3.6 x 10E-3 kg/Mg EDC produced	Thermal oxidizer, high value of range (8.8 x 10E-4 - 3.6 x 10E-3)	163
Ethylene dichloride production - balanced process	2869	Oxychlorination vent - air process	30112501	Chloroform	67663	0.65 kg/Mg EDC produced	Highest value reported in reference uncontrolled	164
Ethylene dichloride production - balanced process	2869	Oxychlorination vent - air process	30112501	Chloroform	67663	0.013 kg/Mg EDC produced	Highest value reported in reference thermal oxidizer	164
Ethylene dichloride production - balanced process	2869	Oxychlorination vent - oxygen process	30112501	Chloroform	67663	0.12 kg/Mg EDC produced	Highest value in reference uncontrolled	164
Ethylene dichloride production - balanced process	2869	Oxychlorination vent - oxygen process	30112501	Chloroform	67663	0.0024 kg/Mg EDC produced	Highest value in reference thermal oxidizer	164
Ethylene dichloride production - balanced process	2869	Column vents	30112501	Chloroform	67663	1.0 kg/Mg EDC produced	Uncontrolled	164
Ethylene dichloride production - balanced process	2869	Sum vents	30112501	Chloroform	67663	<0.02 kg/Mg EDC produced	Thermal oxidizer	164

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Ethylene dichloride production - balanced process	2869	Direct chlorination vent	30112502	Ethylene dichloride	107062	1.08 kg/Mg of EDC produced	Uncontrolled, based on hypothetical plant with total EDC production capacity of 400,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Direct chlorination vent	30112502	Ethylene dichloride	107062	<0.0216 kg/Mg EDC produced	Controlled by thermal oxidizer, hypothetical plant w/ total EDC product. capacity of 400,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Direct chlorination vent	30112502	Ethylene dichloride	107062	0.162-0.26 kg/Mg EDC produced	Controlled by refrig. condens., hypothetical plant w/ total EDC product. capacity of 400,000 Mg/yr	51
Ethylene dichloride production - balanced process	2869	Liquid waste storage	30112509	Carbon tetrachloride	56235	0.0051 kg/Mg EDC produced	Uncon. rolled	163
Ethylene dichloride production - balanced process	2869	Liquid waste storage	30112509	Carbon tetrachloride	56235	7.7 x 10E-4 kg/Mg EDC produced	Refrigerated condenser	163
Ethylene dichloride production - balanced process	2869	Liquid waste storage	30112509	Chloroform	67663	0.003 kg/Mg EDC produced	Uncontrolled	164
Ethylene dichloride production - balanced process	2869	Liquid waste storage	30112509	Chloroform	67663	0.00045 kg/Mg EDC produced	Refrigerated condensor	164
Ethylene dichloride production - direct chlorination	2869	Absorption	30112502	Ethylene	74851	3.10 g/kg produced	Control uncertain, based on tests and mass balance	95
Ethylene dichloride production - direct chlorination	2869	Absorption	30112502	Hydrogen chloride	7647010	0.01 g/kg produced	Control uncertain, based on tests and mass balance	95
Ethylene dichloride production - direct chlorination	2869	Absorption	30112502	Trichloroethylene	79016	0.01 g/kg produced	Control uncertain, based on tests and mass balance	95
Ethylene dichloride production - oxyhydrochlor. of ethylene	2869	Absorption unit	30112501	Methylene chloride	75092	<0.003 g/kg EDC produced	Control status and basis unspecified	95
Ethylene dichloride production - oxyhydrochlor. of ethylene	2869	Separation unit	30112501	Methylene chloride	75092	0.0015 g/kg EDC produced	Control status and basis unspecified	95
Ethylene dichloride production - oxyhydrochlorination	2869	Absorption	30112501	Carbon tetrachloride	56235	0.003 g/kg produced	Control unclear, based on mass balance and testing	95

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Ethylene dichloride production - oxyhydrochlorination	2869	Separation	30112501	Carbon tetrachloride	56235	0.094 g/kg produced	Control unclear, based on mass balance and testing	95
Ethylene dichloride production - oxyhydrochlorination	2869	Absorption	30112501	Chloroform	67663	0.005 g/kg produced	Control unclear, based on mass balance and testing	95
Ethylene dichloride production - oxyhydrochlorination	2869	Separation	30112501	Chloroform	67663	0.042 g/kg produced	Control unclear, based on mass balance and testing	95
Ethylene dichloride production - oxyhydrochlorination	2869	Absorption	30112501	Methyl chloroform	71556	0.005 g/kg produced	Control unclear, based on mass balance and testing	95
Ethylene dichloride production - oxyhydrochlorination	2869	Separation	30112501	Ethyl chloride	75003	0.047 g/kg produced	Control unclear, based on mass balance and testing	95
Ethylene dichloride production - oxyhydrochlorination	2869	Absorption	30112501	Vinyl chloride	75014	0.01 g/kg produced	Control unclear, based on mass balance and testing	95
Ethylene dichloride production - oxyhydrochlorination	2869	Separation	30112501	Vinyl chloride	75014	0.012 g/kg produced	Control unclear, based on mass balance and testing	95
Ethylene dichloride production - oxyhydrochlorination	2869	Separation	30112501	Dichloroethane, 1,1-	75343	0.004 g/kg produced	Control unclear, based on mass balance and testing	95
Ethylene dichloride production - oxyhydrochlorination	2869	Separation	30112501	Vinylidene chloride	75354	0.00009 g/kg produced	Control unclear, based on mass balance and testing	95
Ethylene dichloride production - oxyhydrochlorination	2169	Absorption	30112501	Chlorine	7782505	0.0019 g/kg produced	Control unclear, based on mass balance and testing	95
Ethylene dichloride production - oxyhydrochlorination	2869	Separation	30112501	Chlorine	7782505	0.005 g/kg produced	Control unclear, based on mass balance and testing	95
Ethylene dichloride/vinyl chloride production	2869	Relief valves	301125	Vinyl chloride	75014	0.0062 kg/Mg EDC-VC product	Control unknown for actual emissions	27

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Ethylene dichloride/vinyl chloride production	2869	Primary control	301125	Vinyl chloride	75014	2.9 kg/Mg EDC-VC product	Uncontrolled, rough estimate	27
Ethylene dichloride/vinyl chloride production	2869	Primary control	301125	Vinyl chloride	75014	0.01 kg/Mg EDC-VC product	Rough estimate, actual emissions, degree of control at 9 existing plants unknown	27
Ethylene dichloride/vinyl chloride production	2869	Fugitives	301125	Vinyl chloride	75014	1.2 kg/Mg EDC-VC produced	Uncontrolled, rough estimate	27
Ethylene dichloride/vinyl chloride production	2869	Fugitives	301125	Vinyl chloride	75014	0.032 kg/Mg EDC-VC produced	Rough estimate of actual emissions, control level at 9 existing plants unknown	27
Ethylene dichloride/vinyl chloride production	2869	Process water	301125	Vinyl chloride	75014	0.0007 kg VC monomer/100 kg VCM prod.	Industry average, control level at existing plants unknown, variable	26
Ethylene dichloride/vinyl chloride production	2869	Oxychlorination vent	30112501	Vinyl chloride	75014	0.36 kg/Mg EDC-VC product	Uncontrolled, rough estimate	27
Ethylene dichloride/vinyl chloride production	2869	Oxychlorination vent	30112501	Vinyl chloride	75014	0.079 kg/Mg EDC-VC produced	Rough estimate, actual emissions, control level at 9 existing plants unknown	27
Ethylene dichloride/vinyl chloride production	2869	Oxychlorination proc.	30112501	Vinyl chloride	75014	0.0364 kg VC monomer/100 kg VCM prod.	Industry average, control level at existing plants unknown, variable	26
Ethylene dichloride/vinyl chloride production	2869	Fugitives	30112509	Vinyl chloride	75014	0.1215 kg VC monomer/100 kg VCM produced	Industry average, control level at existing plants unknown, variable	26
Ethylene dichloride/vinyl chloride production	2869	EDC finishing column	30112544	Vinyl chloride	75014	0.05 kg VC monomer/100 kg VCM prod.	Industry average, control level at existing plants unknown, variable	26
Ethylene dichloride/vinyl chloride production	2869	VCM finishing column	30112545	Vinyl chloride	75014	0.24 kg VC monomer/100 kg VCM prod.	Industry average, control level at existing plants unknown, variable	26
Ethylene dichloride/vinyl chloride production	2869	Fugitives	30112550	Vinyl chloride	75014	0.1215 kg VC monomer/100 kg VCM produced	Industry average, control level at existing plants unknown, variable	26
Ethylene oxide production by air-oxidation process	2869	Storage/handling	301174	Ethylene oxide	75218	2.6 g/kg	Uncontrolled, based on source tests	63
Ethylene oxide production by air-oxidation process	2869	Storage/handling	301174	Ethylene oxide	75218	0 g/kg	Controlled by recycle or scrubber with incineration or flaring, based on source tests	63
Ethylene oxide production by air-oxidation process	2869	Purge absorber vent	30117402	Ethylene oxide	75218	0.005-1 g/kg	Uncontrolled, based on source tests	63

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Ethylene oxide production by air-oxidation process	2869	Purge absorber vent	30117402	Ethylene oxide	75218	0 g/kg	Controlled by catalytic oxidation or emergency flare, based on source tests	63
Ethylene oxide production by air-oxidation process	2869	Purge absorber vent	30117402	Ethylene oxide	75218	0.04 g/kg	Controlled 80 percent by thermal oxidation, based on source tests	63
Ethylene oxide production by air-oxidation process	2869	Stripper vent	30117421	Ethylene oxide	75218	<0.7 g/kg	Uncontrolled, based on source tests	63
Ethylene oxide production by air-oxidation process	2869	Stripper vent	30117421	Ethylene oxide	75218	0 g/kg	Controlled by boiler, based on source tests	63
Ethylene oxide production by oxygen-oxidation process	2869	Storage/handling	301174	Ethylene oxide	75218	2.6 g/kg	Uncontrolled, based on engineering judgement for hypothetical plants	63
Ethylene oxide production by oxygen-oxidation process	2869	Storage/handling	301174	Ethylene oxide	75218	0 g/kg	Controlled by aqueous scrubber, based on engineering judgement for hypothetical plants	63
Ethylene oxide production by oxygen-oxidation process	2869	Cooling towers	301174	Ethylene oxide	75218	0.07 g/kg	Uncontrolled, based on engineering judgement for hypothetical plants	63
Ethylene oxide production by oxygen-oxidation process	2869	Cooling towers	301174	Ethylene oxide	75218	0.014 g/kg	Increased stripper column effectiveness, based on engineering judgement for hypothetical plants	63
Ethylene oxide production by oxygen-oxidation process	2869	Carbon dioxide desorber vent	30117410	Ethylene oxide	75218	0.00006-0.75 g/kg	Uncontrolled, based on engineering judgement for hypothetical plants	63
Ethylene oxide production by oxygen-oxidation process	2869	Carbon dioxide desorber vent	30117410	Ethylene oxide	75218	0.06 g/kg	Controlled by carbonate flasher/vent condenser, based on engineering judgement for hypothetical plants	63
Ethylene oxide production by oxygen-oxidation process	2869	Carbon dioxide desorber vent	30117410	Ethylene oxide	75218	0 g/kg	Controlled by CO2 recovery or methanol unit, based on engineering judgement for hypothetical plants	63
Ethylene oxide production by oxygen-oxidation process	2869	Main process purge vent	30117411	Ethylene oxide	75218	0.001-0.002 g/kg	Uncontrolled, based on engineering judgement for hypothetical plants	63
Ethylene oxide production by oxygen-oxidation process	2869	Main process purge vent	30117411	Ethylene oxide	75218	0 g/kg	Controlled by boiler or incinerator, based on engineering judgement for hypothetical plants	63

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Ethylene oxide production by oxygen-oxidation process	2869	Stripper vent	30117421	Ethylene oxide	75218	<0.1 g/kg	Uncontrolled, based on engineering judgement for hypothetical plants	63
Ethylene oxide production by oxygen-oxidation process	2869	Stripper vent	30117421	Ethylene oxide	75218	<0.002 g/kg	Controlled by various reabsorbers/incin./water scrubbers/vent absorbers, based on eng. judgement	63
Ferroalloy production	330	Electric arc furnace, sealed, silicomanganese	30300605	POM		1.0 g/Mw-hr energy consumed by furnace	High pressure drop, wet scrubber represents gaseous and particulate POM	114
Ferroalloy production	3313	General	303006	Manganese	7439965	0.003307 lb/lb ferroalloy produced	Based on engineering estimates	13
Ferroalloy production	3313	FeSi (50%)	30300601	Copper	7440508	0.016 kg/Mg alloy	Uncontrolled, open/closed furnace, baghouse achieves 98%	53, 97
Ferroalloy production	3313	FeSi (75%)	30300602	Copper	7440508	0.05 kg/Mg alloy	Uncontrolled, open/closed furnace, baghouse achieves 98%	53, 97
Ferroalloy production	3313	FeSi (90%)	30300603	Copper	7440508	0.11 kg/Mg alloy	Uncontrolled, open furnace	53, 97
Ferroalloy production	3313	FeMn (80%)	30300615	Copper	7440508	0.006 kg/Mg alloy	Uncontrolled, open furnace	53, 97
Ferroalloy production	3313	Electric arc furnace, sealed, ferromanganese	30300701	POM		156 g/Mw-hr energy consumed by furnace	Uncontrolled, represents gaseous and particulate POM	114
Ferroalloy production	3313	Electric arc furnace, semi-sealed, ferrosilicon	30300702	POM		91 g/Mw-hr energy consumed by furnace	Low energy wet scrubber, represents gaseous and particulate POM	114
Ferroalloy production	3313	Electric arc furnace ferrosilicon production, semi-sealed furnace	30300702	Benz(a)pyrene	50328	1.0 g/Mw-hr energy consumed by furnace	Low energy wet scrubber, represents gaseous and particulate POM	114
Ferrochrome plant	3313	Dry, crush, size ore	30300611	Chromium	7440473	0.34 g/kg ore processed	Composite of controlled and uncontrolled, as total chromium	161
Ferrochrome plant	3313	Receipt/store ore in stock pile	30300613	Chromium	7440473	0.34 g/kg ore processed	Composite of controlled and uncontrolled, as total chromium	161
Ferrochrome plant	3313	Weigh/feed ore to electric arc furnace	30300614	Chromium	7440473	0.31 g/kg ore processed	Composite of controlled and uncontrolled, as total chromium	161
Ferrochrome plant: ferrochrome-silicon product	3313	Cast ferrochrome product	30300617	Chromium	7440473	0.036 g/kg product	Composite of controlled and uncontrolled sources, as total	161

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Ferrochrome plant: ferrochrome-silicon product	3313	Treating molten alloy with Cl in ladle	30300699	Chromium	7440473	1.7 g/kg product	chromium Composite of controlled and uncontrolled, as total chromium	161
Ferrochrome plant: ferrochrome-silicon product	3313	Crush/grind ferrochrome product	30300699	Chromium	7440473	0.11 g/kg product	Composite of controlled and uncontrolled sources, as total chromium	161
Ferrochrome plant: high-carbon ferrochrome	3313	Cast ferrochrome product	30300617	Chromium	7440473	0.070 g/kg product	Composite of controlled and uncontrolled sources, as total chromium	161
Ferrochrome plant: high-carbon ferrochrome	3313	Treat molten alloy with Cl in ladle	30300699	Chromium	7440473	3.3 g/kg product	Composite of controlled and uncontrolled sources, as total chromium	161
Ferrochrome plant: high-carbon ferrochrome	3313	Crush/grind product	30300699	Chromium	7440473	0.21 g/kg product	Composite of controlled and uncontrolled sources, as total chromium	161
Ferromanganese production by electric arc furnace process	3313	Ladle treatment	303	Manganese	7439965	7.5 lb/ton of Mn product	Control status unspecified, calculated based on engineering judgement	107
Ferromanganese production by electric arc furnace process	3313	Casting	303	Manganese	7439965	0.48 lb/ton of Mn product	Control status unspecified, calculated based on engineering judgement	107
Ferromanganese production by electric arc furnace process	3313	Crushing/grinding/sizing	303	Manganese	7439965	0.16 lb/ton of Mn product	Control status unspecified, calculated based on engineering judgement	107
Ferromanganese production by electric arc furnace process	3313	Sealed submerged-arc electric furnace	303	Manganese	7439965	19.2 lb/ton of product	Uncontrolled, based on AP-42 data for ferroalloy production	107
Ferromanganese production by electric arc furnace process	3313	Sealed submerged-arc electric furnace	303	Manganese	7439965	9.46 lb/MWh consumed by operation	Uncontrolled, based on AP-42 data for ferroalloy production	107
Ferromanganese production by electric arc furnace process	3313	Sealed submerged-arc electric furnace	303	Manganese	7439965	0.008 lb/MWh consumed by furn. operation	Controlled by scrubbers, calculated from source tests of total particulate emissions	107
Ferromanganese production by electric arc furnace process	3313	Open submerged-arc electric furnace	303006	Manganese	7439965	13.2 lb/ton of product	Uncontrolled, based on AP-42 data for ferroalloy production	107
Ferromanganese production by electric arc furnace process	3313	Open submerged-arc electric furnace	303006	Manganese	7439965	6.16 lb/MWh consumed by furn. operation	Uncontrolled, based on AP-42 data for ferroalloy production	107

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SIC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Ferromanganese production by electric arc furnace process	3313	Open submerged-arc electric furnace	303006	Manganese	7439965	0.4 lb/ton of product	Controlled by scrubbers, calculated from source tests of total particulate emissions	107
Ferromanganese production by electric arc furnace process	3313	Open submerged-arc electric furnace	303006	Manganese	7439965	0.189 lb/MWh consumed by furn. operation	Controlled by scrubbers, calculated from source tests of total particulate emissions	107
Ferromanganese production by electric arc furnace process	3313	Semi-sealed submerged-arc electric furnace	30300701	Manganese	7439965	5.2 lb/ton of product	Uncontrolled, based on AP-42 data for ferroalloy production	107
Ferromanganese production by electric arc furnace process	3313	Semi-sealed submerged-arc electric furnace	30300701	Manganese	7439965	2.33 lb/MWh consumed by furn. operation	Uncontrolled, based on AP-42 data for ferroalloy production	107
Ferromanganese production by electric arc furnace process	3313	Semi-sealed submerged-arc electric furnace	30300701	Manganese	7439965	0.08 lb/ton of product	Controlled by scrubbers, calculated from source tests of total particulate emissions	107
Ferromanganese production by electric arc furnace process	3313	Semi-sealed submerged-arc electric furnace	30300701	Manganese	7439965	0.037 lb/MWh consumed by furn. operation	Controlled by scrubbers, calculated from source tests of total particulate emissions	107
Ferromanganese production by electric arc furnace process	3313	Electric furnaces	303	Vanadium	7440622	49 lb/ton vanadium processed	Uncontrolled, based on industry estimate (late 1960s/early 1970s)	56
Ferromanganese production by electric arc furnace process	3313	Materials handling	303	Vanadium	7440622	12 lb/ton vanadium processed	Control status/basis unspecified	56
Fertilizer application	0711	Application process	302	Cadmium	7440439	6 x 10 ⁻³ lb/ton fertilizer applied	Engineering estimate, mass balance	38
Fertilizer mixing	2875	Ammoniation-granulation proc.	30104501	Chlorine	7782505	0.0132 lb/ton fertilizer		133
Fish processing plants		Fish scrap cookers - fresh	30201201	Trimethyl amine	75503	0.3 lb/ton fish	Uncontrolled	97
Fish processing plants		Fish scrap cookers - fresh	30201201	Hydrogen sulfide	7783064	0.01 lb/ton fish	Uncontrolled	97
Fish processing plants		Fish scrap cookers - stale	30201202	Trimethyl amine	75503	3.5 lb/ton fish	Uncontrolled	97
Fish processing plants		Fish scrap cookers - stale	30201202	Hydrogen sulfide	7783064	0.2 lb/ton fish	Uncontrolled	97
Fluorocarbon 11/12 production	2869	Reactor vents	30112701	Carbon tetrachloride	56235	0.042 kg/Mg FC 11/12 produced	Uncontrolled	163
Fluorocarbon 11/12 production	2869	Distillation column	30112702	Carbon tetrachloride	56235	0.023 kg/Mg FC 11/12 produced	Refrigerated condenser and CCL ₄ scrubber	163
Fluorocarbon 11/12 production	2869	Storage	30112780	Carbon tetrachloride	56235	0.74 kg/Mg FC 11/12 produced	Uncontrolled, high value of range (0.19-0.74)	163

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
fluorocarbon 11/12 production	2869	Storage	30112780	Carbon tetrachloride	56235	0.11 kg/Mg FC 11/12 produced	Refrigerated condenser, high value of range (0.029-0.11)	163
fluorocarbon 22 production	2869	Chloroform storage	30112780	Chloroform	67663	0.00254 kg/kg fluorocarbon 22 produced	Uncontrolled, fixed roof tank	154
fluorocarbon 22 production	2869	Fugitives	30112780	Chloroform	67663	<0.023 kg/hr	Uncontrolled	164
fluorocarbon 22 production	2869	Chloroform storage	30112780	Chloroform	67663	0.0003 kg/kg fluorocarbon 22 produced	Controlled with refrigerated condenser	164
Foodstuff fumigation	20	Process vents		Ethylene oxide	75218	0.20 lb/lb ethylene oxide used	Uncontrolled, based on source tests	64
Foodstuff fumigation	20	Wastewater		Ethylene oxide	75218	0.5 lb/lb ethylene oxide used	Uncontrolled, based on source tests	64
Foodstuff fumigation	20	Fugitive		Ethylene oxide	75218	0.30 lb/lb ethylene oxide used	Uncontrolled, based on source tests	64
Foodstuff fumigation, with recycling water-sealed pump	20	Process		Ethylene oxide	75218	0.70 lb/lb ethylene oxide used	Uncontrolled, based on source tests	64
Foodstuff fumigation, with recycling water-sealed pump	20	Fugitive		Ethylene oxide	75218	0.30 lb/lb ethylene oxide used	Uncontrolled, based on source tests	64
Formaldehyde production, metal oxide catalyst process	2869	Formaldehyde storage	301120	Formaldehyde	50000	0.03 kg/Mg of 37% formal. soln. produced	Uncontrolled, based on hypothetical plant with formaldehyde production capacity of 45,000 Mg/yr	106
Formaldehyde production, metal oxide catalyst process	2869	Formaldehyde storage	301120	Formaldehyde	50000	0.003 kg/Mg of 37% formal. soln. prod.	Controlled by vent scrubber, hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde production, metal oxide catalyst process	2869	Handling	301120	Formaldehyde	50000	0.01 kg/Mg of 37% formal. soln. produced	Uncontrolled, based on hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde production, metal oxide catalyst process	2869	Handling	301120	Formaldehyde	50000	0.0004 kg/Mg of 37% formal. soln. prod.	Controlled by vapor recovery, hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde production, metal oxide catalyst process	2869	Absorber	30112005	Formaldehyde	50000	0.47 kg/Mg of 37% formal. soln. produced	Uncontrolled, based on hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde production, metal oxide catalyst process	2869	Absorber	30112005	Formaldehyde	50000	<0.009 kg/Mg of 37% formal. soln. prod.	Controlled by thermal oxidation, hypothetical plant with formal.	106

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Formaldehyde production, silver catalyst process	2869	Startup vent	301120	Formaldehyde	50000	0.10 kg/Mg of 37% formal. soln. produced	production capacity of 45,000 Mg/yr Uncontrolled, based on hypothetical plant with formaldehyde production capacity of 45,000 Mg/yr	106
Formaldehyde production, silver catalyst process	2869	Formaldehyde storage	301120	Formaldehyde	50000	0.03 kg/Mg of 37% formal. soln. produced	Uncontrolled, based on hypothetical plant with formaldehyde production capacity of 45,000 Mg/yr	106
Formaldehyde production, silver catalyst process	2869	Formaldehyde storage	301120	Formaldehyde	50000	0.003 kg/Mg of 37% formal. soln. prod.	Controlled by vent scrubber, hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde production, silver catalyst process	2869	Formaldehyde storage	301120	Formaldehyde	50000	<0.0006 kg/Mg of 37% formal. soln. prod.	Controlled by thermal oxidation, hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde production, silver catalyst process	2869	Handling	301120	Formaldehyde	50000	0.01 kg/Mg of 37% formal. soln. produced	Uncontrolled, based on hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde production, silver catalyst process	2869	Handling	301120	Formaldehyde	50000	0.0004 kg/Mg of 37% formal. soln. prod.	Controlled by vapor recovery, hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde production, silver catalyst process	2869	Absorber	30112005	Formaldehyde	50000	0.38 kg/Mg of 37% formal. solution prod.	Uncontrolled, based on hypothetical plant with formaldehyde production capacity of 45,000 Mg/yr	106
Formaldehyde production, silver catalyst process	2869	Absorber	30112005	Formaldehyde	50000	<0.076 kg/Mg of 37% formal. soln. prod.	Controlled by thermal oxidation, based on hypothetical plant w/ formal. prod. capac. of 45,000 Mg/yr	106
Formaldehyde production, silver catalyst process	2869	Absorber	30112005	Formaldehyde	50000	0.076 kg/Mg of 37% formal. soln. prod.	Controlled by flare, based on hypothetical plant with formal. production capacity of 45,000 Mg/yr	106
Formaldehyde production, silver catalyst process	2869	Product fractionator	30112006	Formaldehyde	50000	0.33 kg/Mg of 37% formal. soln. produced	Uncontrolled, based on hypothetical plant with formaldehyde production capacity of 45,000 Mg/yr	106
Formaldehyde production,	2869	Product fractionator	30112006	Formaldehyde	50000	0 kg/Mg of 37% formal.	Recycle to absorber, based on	106

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
silver catalyst process								
Formaldehyde production, silver catalyst process	2899	Product fractionator	30112006	Formaldehyde	50000	0.017 kg/Mg of 37% formal. soln. prod.	hypothetical plant with formaldehyde production capac. of 45,000 Mg/yr	106
Fresh water utility cooling towers	4911	Cooling tower	30600701	Chromium	7440473	2.5 pg/J	Controlled by water scrubber, hypothetical plant with formal. production capacity of 45,000 Mg/yr	161
Fresh water utility cooling towers	4911	Cooling tower	30600701	Chromium	7440473	0.06 pg/J	Drift loss range of 0.1-0.2%, based on source tests, as total chromium	161
Frit smelting	2899	Rotary furnace	30501301	Fluorides		5 lb/ton charge	Drift loss range of 0.0002-0.005%, based on source tests, as total chromium	97
Fungicides application	0711	Application process	302	Cadmium	7440439	1 x 10E-5 lb/gal fungicide applied	Uncontrolled	38
Fungicides application	0711	Application process	302	Cadmium	7440439	20 g/m3 fungicide applied	Engineering estimate, mass balance	41
Gasoline blending at refineries	2911	Storage and handling of EDC and blended product	403	Ethylene dichloride	107062	0.14 mg/liter leaded gasoline produced	Number presented that was based on a review of literature	51
Gasoline blending at refineries	5541	Storage and handling of EDB and blended gasoline	403	Ethylene dibromide	106934	0.014 mg/liter leaded gasoline produced	Engineering estimate using an emission factor for EDC	50, 51
Gasoline loading at bulk plants	4491	Gasoline loading racks, splash loading	404002	Benzene	71432	8.6 mg/liter gasoline	Terminal with 950,000 liters/day, four storage tanks for gasoline	132
Gasoline loading at bulk plants	4491	Gasoline loading racks, submerged loading	404002	Benzene	71432	3.5 mg/liter gasoline	Terminal with 950,000 liters/day, four storage tanks for gasoline	132
Gasoline loading at bulk plants	4491	Submerged loading (balance service)	404002	Benzene	71432	5.9 mg/liter gasoline	Terminal with 950,000 liters/day, four storage tanks for gasoline	132
Gasoline loading at bulk terminals and bulk plants	5171	Submerged (either top or bottom submerged)	40600131	Benzene	71432	3.5 mg benzene vapor/l gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Gasoline loading at bulk terminals and bulk plants	5171	Splash	40600136	Benzene	71432	8.6 mg benzene vapor/l gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Gasoline loading at bulk terminals and bulk plants	5171	Balance service	4060014	Benzene	71432	5.9 mg benzene vapor/l gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Gasoline loading in marine vessels	4491	Barge, typical situation, any cargo	4060022	Benzene	71432	2.5 mg/liter gas transferred	basis given Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Gasoline loading in marine vessels	4491	Barge, gas-freed, any cargo	406002	Benzene	71432	1.9 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Gasoline loading in marine vessels	4491	Ship/ocean barge cleaned, volatile previous cargo	4060023	Benzene	71432	1.1 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Gasoline loading in marine vessels	4491	Ship/ocean barge gas-freed, volatile previous cargo	4060023	Benzene	71432	0.5 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Gasoline loading in marine vessels	4491	Ship/ocean barge any condition, nonvolatile previous cargo	4060023	Benzene	71432	0.5 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Gasoline loading in marine vessels	4491	Ship/ocean barge typical situation, any cargo	4060023	Benzene	71432	1.3 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Gasoline loading in marine vessels	4491	Ship/ocean barge ballasted, volatile previous cargo	40600235	Benzene	71432	1.2 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Gasoline loading in marine vessels	4491	Ship/ocean barge uncleaned, volatile previous cargo	40600237	Benzene	71432	1.9 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Gasoline loading in marine vessels	4491	Barge, uncleaned, volatile previous cargo	40600238	Benzene	71432	2.8 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Gasoline loading in marine vessels	4491	Tanker ballasting	40600241	Benzene	71432	0.6 mg/liter gas transferred	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Gasoline loading in marine vessels	4491	Transit	40600242	Benzene	71432	1.9 mg (per wk)/liter gas transfer	Uncontrolled, assuming a benzene/VOC ratio of 0.006, no basis given	132
Gasoline loading of tank car/truck with leaded gasoline	517	Splash loading normal service	40600136	Ethylene dichloride	107062	0.269 mg/liter transferred	Uncontrolled, calculated based on engineering judgement	51

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SEC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Gasoline loading of tank car/truck with loaded gasoline	517	Splash loading balance service	40400144	Ethylene dichloride	107062	0.192 mg/liter transferred	Uncontrolled, calculated based on engineering judgement	51
Gasoline loading of tank trucks at bulk plants	517	Splash loading - dedicated normal service	404002	Ethylene dibromide	106934	0.0164 mg/liter throughput	Calculated from gasoline vapor estimates	50
Gasoline loading of tank trucks at bulk plants	517	Splash loading - vapor balance service	404002	Ethylene dibromide	106934	0.0113 mg/liter throughput	Calculated from gasoline vapor estimates	50
Gasoline loading of tank trucks at bulk plants	517	Submerged loading - dedicated normal service	404002	Ethylene dibromide	106934	0.00679 mg/liter throughput	Calculated from gasoline vapor estimates	50
Gasoline loading of tank trucks at bulk plants	517	Submerged loading - vapor balance service	404002	Ethylene dibromide	106934	0.0113 mg/liter throughput	Calculated from gasoline vapor estimates	50
Gasoline loading of tank trucks at bulk plants	517	Splash loading - dedicated normal service	404002	Ethylene dichloride	107062	0.168 mg/liter throughput	Calculated from gasoline vapor estimates	50
Gasoline loading of tank trucks at bulk plants	517	Splash loading - vapor balance service	404002	Ethylene dichloride	107062	0.115 mg/liter throughput	Calculated from gasoline vapor estimates	50
Gasoline loading of tank trucks at bulk plants	517	Submerged loading - dedicated normal service	404002	Ethylene dichloride	107062	0.069 mg/liter throughput	Calculated from gasoline vapor estimates	50
Gasoline loading of tank trucks at bulk plants	517	Submerged loading - vapor balance service	404002	Ethylene dichloride	107062	0.115 mg/liter throughput	Calculated from gasoline vapor estimates	50
Gasoline loading of tank trucks at bulk plants	517	Splash loading - dedicated normal service	404002	Gasoline vapor	8006619	1430 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Gasoline loading of tank trucks at bulk plants	517	Splash loading - vapor balance service	404002	Gasoline vapor	8006619	980 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Gasoline loading of tank trucks at bulk plants	517	Submerged loading - dedicated normal service	404002	Gasoline vapor	8006619	590 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Gasoline loading of tank trucks at bulk plants	517	Submerged loading - vapor balance service	404002	Gasoline vapor	8006619	980 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Gasoline loading of tank trucks at bulk terminals	517	Submerged loading - dedicated normal service	404001	Ethylene dibromide	106934	0.00679 mg/liter transferred	Calculated from gasoline vapor estimates	50
Gasoline loading of tank trucks at bulk terminals	517	Submerged loading - vapor balance service	404001	Ethylene dibromide	106934	0.0113 mg/liter transferred	Calculated from gasoline vapor estimates	50
Gasoline loading of tank trucks at bulk terminals	517	Splash loading - dedicated normal service	404001	Ethylene dibromide	106934	0.0164 mg/liter transferred	Calculated from gasoline vapor estimates	50

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Gasoline loading of tank trucks at bulk terminals	517	Splash loading - vapor balance service	404001	Ethylene dibromide	106934	0.0113 mg/liter transferred	Calculated from gasoline vapor estimates	50
Gasoline loading of tank trucks at bulk terminals	517	Submerged loading - dedicated normal service	404001	Ethylene dichloride	107062	0.0693 mg/liter transferred	Calculated from gasoline vapors estimates	50
Gasoline loading of tank trucks at bulk terminals	517	Submerged loading - vapor balance service	404001	Ethylene dichloride	107062	0.115 mg/liter transferred	Calculated from gasoline vapors estimates	50
Gasoline loading of tank trucks at bulk terminals	517	Splash loading - dedicated normal service	404001	Ethylene dichloride	107062	0.168 mg/liter transferred	Calculated from gasoline vapors estimates	50
Gasoline loading of tank trucks at bulk terminals	517	Splash loading - vapor balance service	404001	Ethylene dichloride	107062	0.115 mg/liter transferred	Calculated from gasoline vapors estimates	50
Gasoline loading of tank trucks at bulk terminals	517	Submerged loading - dedicated normal service	404001	Gasoline vapor	8006619	590 mg/liter transferred	Engineering estimate using RVP of 10 psia	97
Gasoline loading of tank trucks at bulk terminals	517	Submerged loading - vapor balance service	404001	Gasoline vapor	8006619	980 mg/liter transferred	Engineering estimate using RVP of 10 psia	97
Gasoline loading of tank trucks at bulk terminals	517	Splash loading - dedicated normal service	404001	Gasoline vapor	8006619	1430 mg/liter transferred	Engineering estimate using RVP of 10 psia	97
Gasoline loading of tank trucks at bulk terminals	517	Splash loading - vapor balance service	404001	Gasoline vapor	8006619	980 mg/liter transferred	Engineering estimate using RVP of 10 psia	97
Gasoline marketing activities	5541	Service stations	40600401	Xylene, p-	106423	3.31 x 10E-6 lb/lb gasoline	Engineering estimate, based on AP-42 VOC emission factor	13
Gasoline marketing activities	5541	Service stations	40600401	Xylene, m-	108383	8.05 x 10E-6 lb/lb gasoline	Engineering estimate, based on AP-42 VOC emission factor	13
Gasoline marketing activities	5541	Service stations	40600401	Toluene	108883	4.97 x 10E-5 lb/lb gasoline consumed	Engineering calculations	13
Gasoline marketing activities	5541	Service stations	40600401	Xylene	1330207	1.47 x 10E-5 lb/lb gasoline	Engineering estimate, based on AP-42 VOC emission factor	13
Gasoline marketing activities	5541	Service stations	40600401	Xylene, o-	95476	3.31 x 10E-6 lb/lb gasoline	Engineering estimate, based on AP-42 VOC emission factor	13
Gasoline storage at bulk plants	4491	Storage tanks, fixed roof breathing loss	404002	Benzene	71432	3.6 mg/liter gasoline	Based on benzene/vapor ratio of 0.006, typical bulk plant w/ gas throughput of 19,000 liters/day	132
Gasoline storage at bulk	4491	Storage tanks, fixed roof	404002	Benzene	71432	6.9 mg/liter gasoline	Terminal with 950,000 liters/day,	132

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
plants								
Gasoline storage at bulk plants	4401	filling loss Storage tanks, fixed roof draining loss	404002	Benzene	71432	2.7 mg/liter gasoline	four storage tanks for gasoline	132
Gasoline storage at bulk plants	5171	Storage tanks - breathing loss	404002	Ethylene dibromide	106934	3.65×10^{-7} mg/liter throughput	Terminal with 950,000 liters/day, four storage tanks for gasoline	50
Gasoline storage at bulk plants	5171	Storage tanks - filling losses	404002	Ethylene dibromide	106934	7.02×10^{-7} mg/liter throughput	Calculated from gasoline vapor estimates	50
Gasoline storage at bulk plants	5171	Storage tanks - draining losses	404002	Ethylene dibromide	106934	2.76×10^{-7} mg/liter throughput	Calculated from gasoline vapor estimates	50
Gasoline storage at bulk plants	5171	Storage tanks - breathing loss	404002	Ethylene dichloride	107062	3.76×10^{-6} mg/liter throughput	Calculated from gasoline vapor estimates	50
Gasoline storage at bulk plants	5171	Storage tanks - filling losses	404002	Ethylene dichloride	107062	7.17×10^{-6} mg/liter throughput	Calculated from gasoline vapor estimates	50
Gasoline storage at bulk plants	5171	Storage tanks - draining losses	404002	Ethylene dichloride	107062	2.82×10^{-6} mg/liter throughput	Calculated from gasoline vapor estimates	50
Gasoline storage at bulk plants	5171	Storage tanks - breathing loss	404002	Gasoline vapor	8006619	0.032 mg/liter throughput	Uncontrolled, engineering estimate, assume fixed roof	50
Gasoline storage at bulk plants	5171	Storage tanks - filling losses	404002	Gasoline vapor	8006619	0.061 mg/liter throughput	Uncontrolled, engineering estimate, assume fixed roof	50
Gasoline storage at bulk plants	5171	Storage tanks - draining loss	404002	Gasoline vapor	8006619	0.024 mg/liter throughput	Uncontrolled, engineering estimate, assume fixed roof	50
Gasoline storage at bulk terminals	5171	Fixed roof storage tanks - working losses	404001	Ethylene dibromide	106934	1.134 g/10E6 liter throughput	Calculated from gasoline vapor estimates	50
Gasoline storage at bulk terminals	5171	Fixed roof storage tanks - breathing losses	404001	Ethylene dibromide	106934	0.292 g/10E6 liter throughput	Calculated from gasoline vapor estimates	50
Gasoline storage at bulk terminals	5171	Floating roof storage tanks - working losses	404001	Ethylene dibromide	106934	2.31×10^{-7} g/10E6 liter throughput	Calculated from gasoline vapor estimates	50
Gasoline storage at bulk terminals	5171	Floating roof storage tanks - storage losses	404001	Ethylene dibromide	106934	0.319 g/10E6 liter throughput	Calculated from gasoline vapor estimates	50
Gasoline storage at bulk terminals	5171	Fixed roof storage tanks - working losses	404001	Ethylene dichloride	107062	0.0116 kg/10E6 liter throughput	Calculated from gasoline vapors estimates	50
Gasoline storage at bulk terminals	5171	Fixed roof storage tanks -	404001	Ethylene dichloride	107062	2.08 g/10E6 liter throughput	Calculated from gasoline vapors	50

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Terminals		Breathing losses					estimates	
Gasoline storage at bulk terminals	5171	Floating-roof storage tanks - working losses	404001	Ethylene dichloride	107062	0.00236 mg/1006 liter throughput	Calculated from gasoline vapors estimates	50
Gasoline storage at bulk terminals	5171	Floating-roof storage tanks - storage losses	404001	Ethylene dichloride	107062	3.25 g/1006 liter throughput	Calculated from gasoline vapors estimates	50
Gasoline storage at bulk terminals	5171	Floating-roof storage tanks - working losses	404001	Gasoline vapor	8006619	0.0966 mg/1006 liter throughput	Converted from Mg/Yr, assume 365 days of operation, equal throughput for each tank	50
Gasoline storage at bulk terminals	5171	Floating-roof storage tanks - breathing losses	404001	Gasoline vapor	8006619	0.0254 mg/1006 liter throughput	Converted from Mg/Yr, assume 365 days of operation, equal throughput for each tank	50
Gasoline storage at bulk terminals	5171	Floating-roof storage tanks - working losses	404001	Gasoline vapor	8006619	2.01 x 10E-8 mg/1006 liter throughput	Converted from Mg/Yr, assume 365 days of operation, equal throughput for each tank	50
Gasoline storage at bulk terminals	5171	Floating-roof storage tanks - storage losses	404001	Gasoline vapor	8006619	0.0277 mg/1006 liter throughput	Converted from Mg/Yr, assume 365 days of operation, equal throughput for each tank	50
Gasoline storage at typical service station	5541	Underground storage tanks, tank filling losses (splash fill)	40600301	Benzene	71432	8.3 mg/liter gasoline	Terminal with 950,000 liters/day, four storage tanks for gasoline	132
Gasoline storage at typical service station	5541	Underground storage tanks, tank filling losses (submerged fill)	40600302	Benzene	71432	5.3 mg/liter gasoline	Terminal with 950,000 liters/day, four storage tanks for gasoline	132
Gasoline storage at typical service station	5541	Underground storage tanks, tank filling losses (balanced submerged filling)	40600306	Benzene	71432	0.2 mg/liter gasoline	Terminal with 950,000 liters/day, four storage tanks for gasoline	132
Gasoline storage at typical service station	5541	Underground storage tanks, breathing losses	40600307	Benzene	71432	0.7 mg/liter gasoline	Terminal with 950,000 liters/day, four storage tanks for gasoline	132
Gasoline use		Evaporation from automobiles		Xylene, p-	106423	1.28 x 10E-6 lb/vehicle mile traveled	Engineering estimate, based on AP-42 VOC emission factor	13
Gasoline use		Automobile exhaust		Xylene, p-	106423	7.06 x 10E-5 lb/vehicle mile traveled	Engineering estimate, based on AP-42 VOC emission factor	13
Gasoline use		Evaporation from automobiles		Xylene, m-	108383	3.11 x 10E-6 lb/vehicle mile traveled	Engineering estimate, based on AP-42 VOC emission factor	13

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Gasoline use		Automobile exhaust		Xylene, o-	108383	9.17 x 10E-5 lb/vehicle mile traveled	Engineering estimate, based on AP-42 VOC emission factor	13
Gasoline use		Evaporation from automobiles		Toluene	106663	2.2 x 10E-5 lb/vehicle mile traveled	Engineering calculations	13
Gasoline use		Evaporation from automobiles		Xylene	1330207	5.66 x 10E-6 lb/vehicle mile traveled	Engineering estimate, based on AP-42 VOC emission factor	13
Gasoline use		Automobile exhaust		Xylene	1330207	2.39 x 10E-6 lb/vehicle mile traveled	Engineering estimate, based on AP-42 VOC emission factor	13
Gasoline use		Evaporation from automobiles		Xylene, o-	95476	1.28 x 10E-6 lb/vehicle mile traveled	Engineering estimate, based on AP-42 VOC emission factor	13
Gasoline use		Automobile exhaust		Xylene, o-	95476	7.76 x 10E-5 lb/vehicle mile traveled	Engineering estimate, based on AP-42 VOC emission factor	13
Gasoline use		Gasoline evaporation from automobiles	280000	Xylene	1330207	0.038 g/gallon gasoline consumed	Engineering judgement	13
Gasoline use		Automobile exhaust	280000	Xylene	1330207	1.6 g/gallon gasoline consumed	Engineering judgement	13
General laboratory use		General handling, experimental, or other losses		Mercury	7439976	4.0 kg/10E3 kg of Hg used	Control status unspecified - based on engineering judgement	113
Glass fiber manufacture	3229	Textile glass furnace	305012	Fluorides		1 kg/Mg raw material processed	Uncontrolled, based on limited test data	97
Glass fiber manufacture	3296	Wool glass furnace - gas	305012	Fluorides		0.06 kg/Mg raw material processed	Uncontrolled, based on limited test data	97
Glass fiber manufacture	3296	Wool glass furnace - electric	30501203	Fluorides		0.001 kg/Mg raw material processed	Uncontrolled, based on limited test data	97
Glass manufacturing	32	Entire process	305014	Arsenic	7440382	0.18 kg inorganic As/Mg glass pulled	Rough estimate, control devices only compliance with relevant State PM regs. assumed	32
Glass manufacturing	32	Entire process	305014	Arsenic	7440382	0.25 kg total elem. As/Mg glass pulled	For all single, regner. type furnaces, no control, regardless of type of glass prod.	28
Glycerin production - chlorination process	2869	Catalyst prep vent - allyl alcohol step	30117610	Butyl alcohol, sec-	78922	74.250 g/Mg glycerin produced	Uncontrolled, assumed 33% VOC is butyl alcohol, test data and calculations	150
Glycerin production -	2869	Lights stripper vent - allyl	30117615	Acetone	67641	2750 g/Mg glycerin produced	Uncontrolled, assumed 25% VOC is	150

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
chlorination process		alcohol step					acetone, test data and calculations	
Glycol ether production - methanol process	2869	Vacuum system vent	30125302	Ethylene glycol methyl ether	109864	0.094 g/kg glycol ether produced	Uncontrolled, approximation based on data from one plant	142
Glycol ether production - methanol process	2869	Vacuum system vent	30125302	Diethylene glycol methyl ether	111773	0.063 g/kg glycol ether produced	Uncontrolled, approximation based on data from one plant	142
Glycol ether production - methanol process	2869	Vacuum system vent	30125302	Triethylene glycol ethyl ether	112505	0.015 g/kg glycol ether produced	Uncontrolled, approximation based on data from one plant	142
Glycol ether production - methanol process	2869	Vacuum system vent	30125302	Methanol	67561	0.063 g/kg glycol ether produced	Uncontrolled, approximation based on data from one plant	142
Granular triple superphosphate	2574	Reactor, granulator, dryer, cooler and screens	30102906	fluoride	16984488	0.24 lb/ton P205	Wet scrubber (97%), based on test data	97
Granular triple superphosphate	2574	Curing building	30102907	fluoride	16984488	0.04 lb/ton P205	Wet scrubber (97%), based on test data	97
Gray iron foundry operations	3321	Entire process	304003	Manganese	7439965	0.000154 lb/lb metal produced	Based on engineering estimates	13
Hard chrome plating	34	Plating tank	30901001	Chromium	7440473	2.6 x 10E-3 g/hr/amp	Total chrome, average of 3 values, based on ampere used, uncontrolled	135
Hard chrome plating	34	Plating tank	30901001	Chromium	7440473	2.6 g/hr/m2	Total chrome, ave. of 3 values, based on tank surface area, uncontrolled	135
Hard chrome plating	34	Plating tank	30901001	Chromium	7440473	1.3 x 10E-3 g/hr/amp	Hex chrome, average of 3 values, based on ampere used, uncontrolled	135
Hard chrome plating	34	Plating tank	30901001	Chromium	7440473	1.2 g/hr/m2	Hex chrome, average of 3 values, based on tank surface area, uncontrolled	135
Hard chrome plating	34	Plating tank	30901001	Chromium	7440473	4.8 x 10E-3 g/hr/amp	Total chrome, average factor for uncontrolled plating tanks	135
Hazardous waste incineration	49	Stack - fly ash	5	Polychlorinated dioxins, total		17.5 - 113,710 ng/g	3 sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Hazardous waste incineration	49	Stack - fly ash	5	Tetrachlorodibenzo-p-dioxin		Not detectable - 12,000 ng/g	3 sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Hazardous waste incineration	49	Stack - fly ash	5	Tetrachlorodibenzo-p-dioxin		Not detectable - 110 ng/g	3 sites tested, homologue data	116

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SEC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Hazardous waste incineration	49	Rotary kiln - particulate	503	In, 2,3,7,8-Polychlorinated dibenzo-p-dioxins	1746016	9,710 - 847,400 ng/g	given in refer., isomer data may be avail. from indiv. references	119
Hazardous waste incineration	49	Rotary kiln - particulate	503	Polychlorinated dibenzo-p-dioxins	1746016	13 - 1064 ng/g	One location, n = 3, both solid & liquid waste, no supplementary fuel used	119
Hazardous waste incineration	49	Tar burner - particulate	503	Polychlorinated dibenzo-p-dioxins	1746016	256 - 572 ng/g	One location, n = 4, Use natural gas as suppl. fuel, hepta, hepta, octa homologues only	119
Hazardous waste incineration	49	Rotary kiln - particulate	503	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	Not detectable - 5500 ng/g	One location, n = 3, both solid & liquid waste, no supplementary fuel used	119
Hazardous waste incineration	49	Rotary kiln - particulate	503	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	MD	One location, n = 5, both solid & liquid waste, use of supplementary fuel	119
Hazardous waste incineration	49	Tar burner - particulate	503	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	Not detectable	One location, n = 4, Uses natural gas as suppl. fuel, detection limit = 13 - 3.0 ng/g	119
Hazardous waste incineration	49	Rotary kiln - flue gas	503007	Polychlorinated dibenzo-p-dioxins	1746016	Not detectable - 45.5 ng/m3	Two locations	119
Hazardous waste incineration	49	Rotary kiln - flue gas	503007	Polychlorinated dibenzofurans	1746016	Not detectable - 20.3 ng/m3	One location	119
Hazardous waste incineration	49	Rotary kiln - flue gas	503007	Polychlorinated dibenzo-p-dioxins	1746016	75 ng/train	Penta, hepta, octa CDD only	119
Hazardous waste incineration	49	Rotary kiln - flue gas	503007	Polychlorinated dibenzofurans	1746016	19 ng/train	Penta homologue only	119
Hazardous waste incineration	49	Bottom ash	503007	Polychlorinated dibenzo-p-dioxins	1746016	538 ng/g	Use of afterburner, fuel = transformer oil w/ PCBs + insul. from alum. & copper wirings, 1 sample	119
Hazardous waste incineration	49	Bottom ash	503007	Polychlorinated dibenzofurans	1746016	2853 ng/g	Use of afterburner, fuel = transformer oil w/ PCBs + insul. from alum. & copper wirings, 1 sample	119

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Herbicide production	2879	Process vents		Phosgene	75445	6.6 lb/1006 lb phosgene produced	Hypothet. plant, value is for herbic. alone, add to phos. value to get value for prod. herbic. plant	121
Herbicide production	2879	Fugitive		Phosgene	75445	6 lb/1006 lb phosgene produced	Hypothetical plant, upper end of range, lower value is 0.15 lb/1006 lb	121
Herbicide production	2879	Process upset		Phosgene	75445	0.0006 lb/ton phosgene produced		121
Hexachlorocyclopentadiene production	2869	Chlorination reactor vent	301	Hexachlorocyclopentadiene	77474	0.0052 lb/lb produced	Based on engineering judgement	13
Hexachlorocyclopentadiene production	2869	Fugitive - equipment leaks	301	Hexachlorocyclopentadiene	77474	0.0020 lb/lb produced	Based on engineering judgement	13
Hexachlorocyclopentadiene production	2869	Storage	407	Hexachlorocyclopentadiene	77474	0.0008 lb/lb produced	Based on engineering judgement	13
Hexamethylene-tetramine production	2869	Process	30103425	Formaldehyde	50000	<0.39 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or the types of control involved	106
Hexamethylene-tetramine production	2869	Formaldehyde storage	30103425	Formaldehyde	50000	0.05 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or the types of control involved	106
Hospital sterilization	8062	Process vents	31502001	Ethylene oxide	75218	0.25 lb/lb ethylene oxide used	Uncontrolled, based on source tests	64
Hospital sterilization	8062	Wastewater	31502001	Ethylene oxide	75218	0.55 lb/lb ethylene oxide used	Uncontrolled, based on source tests	64
Hospital sterilization	8062	Fugitive	31502001	Ethylene oxide	75218	0.20 lb/lb ethylene oxide used	Uncontrolled, based on source tests	64
Hospital sterilization	8062	Process vents	31502001	Ethylene oxide	75218	0.33 lb/lb hospital bed	Uncontrolled, based on source tests, inappropriate to use this factor for individual hospitals	64
Hospital sterilization	8062	Wastewater	31502001	Ethylene oxide	75218	0.72 lb/lb hospital bed	Uncontrolled, based on source tests, inappropriate to use this factor for individual hospitals	64
Hospital sterilization	8062	Fugitive	31502001	Ethylene oxide	75218	0.26 lb/lb hospital bed	Uncontrolled, based on source tests, inappropriate to use this factor for individual hospitals	64

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SEC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Hospital sterilization	8062	Process vents	31502001	Ethylene oxide	75218	0.19 lb/lb ethylene oxide purchased	Uncontrolled, based on source tests	64
Hospital sterilization	8062	Wastewater	31502001	Ethylene oxide	75218	0.42 lb/lb ethylene oxide purchased	Uncontrolled, based on source tests	64
Hospital sterilization	8062	Fugitive	31502001	Ethylene oxide	75218	0.15 lb/lb ethylene oxide purchased	Uncontrolled, based on source tests	64
Hospital sterilizer, table-top	8062	Process	31502001	Ethylene oxide	75218	0.80 lb/lb ethylene oxide used	Uncontrolled, based on engineering judgment	64
Hospital sterilizer, table-top	8062	Fugitive	31502001	Ethylene oxide	75218	0.20 lb/lb ethylene oxide used	Uncontrolled, based on engineering judgment	64
Hospital sterilizer, table-top	8062	Process	31502001	Ethylene oxide	75218	0.62 lb/lb ethylene oxide purchased	Uncontrolled, based on engineering judgment	64
Hospital sterilizer, table-top	8062	Fugitive	31502001	Ethylene oxide	75218	0.15 lb/lb ethylene oxide purchased	Uncontrolled, based on engineering judgment	64
Hospital waste incineration	806	Incinerator	315020	Polychlorinated dibenzofurans, total		5.3 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Octachlorodibenzofurans		2.28 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Heptachlorodibenzofurans		1.65 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Hexachlorodibenzofurans		0.79 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Pentachlorodibenzofurans		0.41 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Tetrachlorodibenzofurans		0.33 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Tetrachlorodibenzo-p-dioxins		1.26 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Pentachlorodibenzo-p-dioxins		2.2 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Hexachlorodibenzo-p-dioxins		2.97 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Heptachlorodibenzo-p-dioxins		3.07 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Octachlorodibenzo-p-dioxins		2.21 x 10E-6 lb/ton feed	Uncontrolled, test data	9

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Hospital waste incineration	806	Incinerator	315020	Polychlorinated dibenzo-p-dioxins, total		11.71 x 10E-6 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Perchloroethylene	127184	0.000249 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Carbon tetrachloride	56235	0.000099 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Manganese	7439965	5.4 x 10E-4 lb/ton	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Nickel	7440020	2.53 x 10E-4 lb/ton	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Arsenic	7440382	1.8 x 10-4 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Cadmium	7440439	35.2 x 10-4 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Incinerator	315020	Chromium	7440473	7.22 x 10E-4 lb/ton	Uncontrolled, test data, total chromium	9
Hospital waste incineration	806	Incinerator	315020	Trichlorotrifluoroethane	761131	0.000825 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Two-chambered incinerator	315020	Hydrogen chloride	7647010	20-32 lb/ton waste	Uncontrolled, range due to variation in waste, test of one facility	103
Hospital waste incineration	806	Incinerator	315020	Trichloroethylene	79016	0.000239 lb/ton feed	Uncontrolled, test data	9
Hospital waste incineration	806	Flue gas	5	Polychlorinated dibenzo-p-dioxins		15 ng/m3	Flue gas sample, n = 3	119
Hospital waste incineration	806	Flue gas	5	Polychlorinated dibenzofurans		25 ng/m3	Flue gas sample, n = 3	119
Hospital waste incineration	806		502001	Benzene	71432	0.1-0.4 lb/hr benzene	Test report by California Air Resources Board, engineering judgement	132
Hospital waste incineration	806	Flue gas	502005	Polychlorinated dibenzo-p-dioxins		15 - 84 ng/m3	Based on testing at four locations in the U.S. and Canada	119
Hospital waste incineration	806	Flue gas	502005	Polychlorinated dibenzofurans		25 - 197 ng/m3	Based on testing at four locations in the U.S. and Canada	119
Hot mix asphalt production	2951	Batch mix plant, rotary dryer and mixer	30500201	PM		19.7 mg/Mg asphalt produced	Cyclone and wet scrubber, virgin feed material	114
Hot mix asphalt production	2951	Drum mix plant	30500205	PM		35.9 mg/Mg asphalt produced	Knock out box, using recycled feed	114

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Hot mix asphalt production	2951	Drum mix plant	30500205	PM		16.9 mg/Mg asphalt produced	Knock out box and venturi scrubber, using recycled feed	116
Hot mix asphalt production	2951	Drum mix plant	30500205	PM		22.1 mg/Mg asphalt produced	Knock out box	116
Hot mix asphalt production	2951	Drum mix plant	30500205	PM		13.5 mg/Mg asphalt produced	Knock out box and venturi scrubber	116
Hydrochloric acid manufacture	2819	By-product HCl	30101101	Hydrogen chloride	7647010	0.2 lb/ton	Final scrubber	97
Hydrochloric acid manufacture	2819	By-product HCl	30101101	Hydrogen chloride	7647010	3 lb/ton	Without scrubber	97
Hydrochloric acid manufacture process	2819	Entire process		Hydrogen chloride	7647010	1.3 to 3.8 lbs/ton acid produced		34
Hydrochloric acid-synthesis process	2819	Entire process		Hydrogen chloride	7647010	0 to <0.035 lbs/ton acid produced		34
Hydrofluoric acid manufacture	2819	Tail gas	30101206	Silicon tetrafluoride		30 lb/ton acid	Uncontrolled, average of data for three plants	97
Hydrofluoric acid manufacture	2819	Tail gas	30101206	Silicon tetrafluoride		0.3 lb/ton acid	Caustic scrubber, average of data for three plants	97
Hydrofluoric acid manufacture	2819	Tail gas	30101206	Hydrogen fluoride	7664393	25 lb/ton acid	Uncontrolled, average of data for three plants	97
Hydrofluoric acid manufacture	2819	Tail gas	30101206	Hydrogen fluoride	7664393	0.2 lb/ton acid	Caustic scrubber, average of data for three plants	97
Hydrofluoric acid manufacture	2822	All sources		Carbon tetrachloride	56235	220 Mg/yr	One plant only in U.S.	134
Industrial carbon regeneration	49	Stack		Tetrachlorodibenzo-p-dioxins		0.57 ng/dscm @ 3% O ₂	Tier 4 stack testing, does not include 2,3,7,8-isomer	115
Industrial carbon regeneration	49	Stack		Pentachlorodibenzo-p-dioxins		0.44 ng/dscm @ 3% O ₂	Tier 4 stack testing	115
Industrial carbon regeneration	49	Stack		Hexachlorodibenzo-p-dioxins		0.98 ng/dscm @ 3% O ₂	Tier 4 stack testing	115
Industrial carbon regeneration	49	Stack		Heptachlorodibenzo-p-dioxins		0.90 ng/dscm @ 3% O ₂	Tier 4 stack testing	115
Industrial carbon regeneration	49	Stack		Octachlorodibenzo-p-dioxins		0.81 ng/dscm @ 3% O ₂	Tier 4 stack testing	115
Industrial carbon regeneration	49	Stack		Tetrachlorodibenzofurans		1.2 ng/dscm @ 3% O ₂	Tier 4 stack testing, does not include 2,3,7,8-isomer	115

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Industrial carbon regeneration	49	Stack		Pentachlorodibenzofurans		0.37 ng/dscm @ 3% O ₂	Tier 4 stack testing	115
Industrial carbon regeneration	49	Stack		Hexachlorodibenzofurans		0.59 ng/dscm @ 3% O ₂	Tier 4 stack testing	115
Industrial carbon regeneration	49	Stack		Heptachlorodibenzofurans		0.61 ng/dscm @ 3% O ₂	Tier 4 stack testing	115
Industrial carbon regeneration	49	Stack		Octachlorodibenzofurans		0.56 ng/dscm @ 3% O ₂	Tier 4 stack testing	115
Industrial carbon regeneration	49	Stack		Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	Not detectable	Tier 4 stack testing, detection limit <0.1 ng/dscm @ 3% O ₂	115
Industrial carbon regeneration	49	Stack		Tetrachlorodibenzofurans, 2,3,7,8-	51207319	Not detectable	Tier 4 stack testing, detection limit <0.3 ug/dscm @ 3% O ₂	115
Industrial waste incinerators	49	Stack - fly ash	503	Polychlorinated dioxins, total		710 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Industrial waste incinerators	49	Stack - fly ash	503	Tetrachlorodibenzo-p-dioxins		100 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Industrial waste incinerators	49	Stack - fly ash	503	Polychlorinated furans, total		320 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Industrial waste incinerators	49	Stack - fly ash	503	Tetrachlorodibenzofurans		100 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Instrument manufacture	3800	Breakage, spillage and other sources	399999	Mercury	7439976	9 kg/10E3 kg of contained Hg responses (1960s)	Uncontrolled, based on survey responses (1960s)	113
Iron and steel foundry	332	Green sand shakeout	304	Cadmium	7440439	1.326 mg/ton metal cast	Uncontrolled, Cd dust less than 3 um size only	47
Iron and steel production	3312	General	303	Manganese	7439965	0.00002 lb/lb iron and steel produced	Based on engineering estimates	13
Iron and steel production	3312	Sintering operations, sinter discharge (breaker and hot screen)	303008	Manganese	7439965	0.08 lb/ton of sinter	Uncontrolled, calculated based on engineering judgement	107
Iron and steel production	3312	Sintering operations, sinter discharge (breaker and hot screen)	303008	Manganese	7439965	0.0012 lb/ton of sinter	Controlled by fabric filter, calculated based on engineering judgement	107

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Iron and steel production	3312	Sintering operations, sinter discharge (breaker and hot screen)	303008	Manganese	7439965	0.007 lb/ton of sinter	Controlled by orifice scrubber, calculated based on engineering judgement	107
Iron and steel production	3312	Sintering operations, windbox and discharge	303008	Manganese	7439965	0.0036 lb/ton of sinter	Controlled by fabric filter, calculated based on engineering judgement	107
Iron and steel production	3312	Blast furnace	303008	Vanadium	7440622	1.4 lb/thousand tons pig iron produced	Control status/basis unclear	56
Iron and steel production	3312	Sintering operations, windbox exhaust	30300813	Manganese	7439965	0.134 lb/ton of sinter	Uncontrolled, calculated based on engineering judgement	107
Iron and steel production	3312	Sintering operations, windbox exhaust	30300813	Manganese	7439965	0.104 lb/ton of sinter	After coarse particle removal, calculated based on engineering judgement	107
Iron and steel production	3312	Sintering operations, windbox exhaust	30300813	Manganese	7439965	0.0192 lb/ton of sinter	Controlled by dry ESP, calculated based on engineering judgement	107
Iron and steel production	3312	Sintering operations, windbox exhaust	30300813	Manganese	7439965	0.002 lb/ton of sinter	Controlled by wet ESP, calculated based on engineering judgement	107
Iron and steel production	3312	Sintering operations, windbox exhaust	30300813	Manganese	7439965	0.0056 lb/ton of sinter	Controlled by scrubber, calculated based on engineering judgement	107
Iron and steel production	3312	Sintering operations, windbox exhaust	30300813	Manganese	7439965	0.012 lb/ton of sinter	Controlled by cyclone, calculated based on engineering judgement	107
Iron and steel production	3312	Sinter plants/windbox	30300813	Copper	7440508	0.004 kg/Mg finished sinter	Uncontrolled, after coarse PM removal, copper content 0.104%	53, 97
Iron and steel production	3312	Sinter plants/windbox	30300813	Copper	7440508	0.00009 kg/Mg finished sinter	Wet ESP, copper content 0.104%	53, 97
Iron and steel production	3312	Sinter plants/sinter discharge	30300814	Copper	7440508	0.003 kg/Mg finished sinter	Uncontrolled, copper content 0.104%	53, 97
Iron and steel production	3312	Sinter plants/sinter discharge	30300814	Copper	7440508	0.00005 kg/Mg finished sinter	Baghouse, copper content 0.104%	53, 97
Iron and steel production	3312	Blast furnace	30300822	Copper	7440508	0.001 kg/Mg hot metal	Uncontrolled, average copper content 0.25, range 0.051-0.53	53, 97
Iron and steel production	3312	Iron blast furnaces, casthouse emissions	30300825	Manganese	7439965	0.0018 lb/ton of iron	Uncontrolled, calculated based on engineering judgement	107
Iron and steel production	3312	Iron blast furnaces, casthouse emissions	30300825	Manganese	7439965	0.00018 lb/ton of iron	Controlled by runner covers & pickup hoods to fabric filter, calculated based on engineering judgement	107

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Iron and steel production	3312	Iron blast furnaces, slaps	30300826	Manganese	7439965	0.261 lb/strip	judge.	
Iron and steel production	3312	Open hearth furnace operations, roof monitor	303009	Manganese	7439965	0.0006 lb/ton of pig iron	Uncontrolled, calculated based on engineering judgment	107
Iron and steel production	3312	Open hearth furnace operations, teeming	303009	Manganese	7439965	0.00026 lb/ton of pig iron	Uncontrolled, calculated based on engineering judgment	107
Iron and steel production	3312	Open hearth furnace operations, teeming	303009	Manganese	7439965	0.00006 lb/ton of pig iron	Controlled by side-draft hood to fabric filter, calculated based on engineering judgment	107
Iron and steel production	3312	Basic oxygen furnace (melting/refining)	303009	Copper	7440508	0.005 kg/Mg steel produced	Uncontrolled, copper content 0.035%	53, 97
Iron and steel production	3312	Basic oxygen furnace (melting/refining)	303009	Copper	7440508	0.00002 kg/Mg steel produced	Open hood, vented to ESP	53, 97
Iron and steel production	3312	Open hearth furnace operations, melting/refining	30300901	Manganese	7439965	0.078 lb/ton of pig iron	Uncontrolled, calculated based on engineering judgment	107
Iron and steel production	3312	Open hearth furnace operations, melting/refining	30300901	Manganese	7439965	0.001 lb/ton of pig iron	Controlled by ESP, calculated based on engineering judgment	107
Iron and steel production	3312	Open hearth furnace - melting/refining	30300901	Copper	7440508	0.02 kg/Mg steel	Uncontrolled, copper content 0.16%	53, 97
Iron and steel production	3312	Open hearth furnace - melting/refining	30300901	Copper	7440508	0.0002 kg/Mg steel	Controlled - ESP, copper content 0.16	53, 97
Iron and steel production	3312	Electric arc furnace - charging/tapping/slagging	30300906	Copper	7440508	0.002 kg/Mg steel	Uncontrolled, copper content 0.265%, carbon steel	53, 97
Iron and steel production	3312	Electric arc furnace - melting/refining	30300908	Copper	7440508	0.05 kg/Mg steel produced	Uncontrolled, copper content 0.265%, carbon steel	53, 97
Iron and steel production	3312	Basic oxygen furnace charging	30300916	Copper	7440508	0.0001 kg/Mg hot metal	At source, copper content 0.035%	53, 97
Iron and steel production	3312	Basic oxygen furnace tapping	30300917	Copper	7440508	0.0002 kg/Mg steel	At source, copper content 0.035%	53, 97
Iron foundries	332	Cupola	30400301	Manganese	7439965	0.25 lb/ton of iron	Uncontrolled, calculated based on engineering judgment	107
Iron foundries	332	Cupola	30400301	Manganese	7439965	0.12 lb/ton of iron	Controlled by wet cap, calculated based on engineering judgment	107

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
		reactor						
Kraft mill paper process	2611	Batch digester (blow)	30700101	Hydrogen sulfide	7783064	0.0-0.1 kg/Mg of product	combustion temps and fuel types account for the broad ranges of emis.	5
Kraft mill paper process	2611	Batch digester (relief)	30700101	Hydrogen sulfide	7783064	0.0-0.05 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Kraft mill paper process	2611	Continuous digester	30700101	Hydrogen sulfide	7783064	0.0-0.1 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Kraft mill paper process	2611	Brown stock washer(s) (hood vent)	30700102	Hydrogen sulfide	7783064	0.0-0.1 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Kraft mill paper process	2611	Brown stock washer(s) (seal vent)	30700102	Hydrogen sulfide	7783064	0.0-0.01 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Kraft mill paper process	2611	Tall oil recovery evaporator	30700104	Hydrogen sulfide	7783064	0.05-1.5 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Kraft mill paper process	2611	Recovery furnace (after direct contact evap.)	30700104	Hydrogen sulfide	7783064	0.0-25.0 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Kraft mill paper process	2611	Direct contact evap. (unoxidized black liquor)	30700104	Hydrogen sulfide	7783064	2.5-15.0 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Kraft mill paper process	2611	Smelt dissolv. tank	30700105	Hydrogen sulfide	7783064	0.0-1.0 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Kraft mill paper process	2611	Lime kiln exhaust	30700106	Hydrogen sulfide	7783064	0.0-0.5 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Kraft mill paper process	2611	Black liquor oxidation tower	30700109	Hydrogen sulfide	7783064	0.0-0.01 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Kraft mill paper process	2611	Direct contact evap. (oxidized black liquor)	30700109	Hydrogen sulfide	7783064	0.05-1.0 kg/Mg of product	Operating conditions such as combustion temps and fuel types account for the broad ranges of emis.	5
Kraft paper recovery boilers	26	Stack	307	Tetrachlorodibenzo-p-dioxins		Not detectable - 0.13 ng/dscm @ 3% O ₂	Three locations tested, detection limit <0.1 ng/dscm @ 3% O ₂ , does not include 2,3,7,8-isomer	115
Kraft paper recovery boilers	26	Stack	307	Pentachlorodibenzo-p-dioxins		Not detectable - 0.15 ng/dscm @ 3% O ₂	Three locations tested, detection limit <0.1 ng/dscm @ 3% O ₂	115
Kraft paper recovery boilers	26	Stack	307	Hexachlorodibenzo-p-dioxins		0.06 - 0.39 ng/dscm @ 3% O ₂	Three locations tested	115
Kraft paper recovery boilers	26	Stack	307	Heptachlorodibenzo-p-dioxins		0.16 - 0.88 ng/dscm @ 3% O ₂	Three locations tested	115
Kraft paper recovery boilers	26	Stack	307	Octachlorodibenzo-p-dioxins		0.49 - 1.4 ng/dscm @ 3% O ₂	Three locations tested	115
Kraft paper recovery boilers	26	Stack	307	Tetrachlorodibenzofurans		0.13 - 0.46 ng/dscm @ 3% O ₂	Three locations tested, does not include 2,3,7,8-isomer	115
Kraft paper recovery boilers	26	Stack	307	Pentachlorodibenzofurans		Not detectable - 0.46 ng/dscm @ 3% O ₂	Three locations tested, detection limit <0.1 ng/dscm @ 3% O ₂	115
Kraft paper recovery boilers	26	Stack	307	Hexachlorodibenzofurans		0.07 - 0.59 ng/dscm @ 3% O ₂	Three locations tested	115
Kraft paper recovery boilers	26	Stack	307	Heptachlorodibenzofurans		0.16 - 0.50 ng/dscm @ 3% O ₂	Three locations tested	115
Kraft paper recovery boilers	26	Stack	307	Octachlorodibenzofurans		0.07 - 0.13 ng/dscm @ 3% O ₂	Three locations tested	115
Kraft paper recovery boilers	26	Stack	307	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	Not detectable	Three locations tested, detection limit <0.1 ng/dscm @ 3% O ₂	115
Kraft paper recovery boilers	26	Stack	307	Tetrachlorodibenzofuran,	51207319	0.01 - 0.02 ng/dscm @ 3% O ₂	Three locations tested	115

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Kraft pulp	2611	Smelt dissolving tank	30700105	2,3,7,8-Sodium hydroxide	1310732	4 lb/ton air-dried pulp	Uncontrolled, 8 lb PM/ton air-dried pulp, assume 50% is NaOH	158
Kraft pulp	2611	Smelt dissolving tank	30700105	Sodium hydroxide	1310732	0.025 lb/ton air-dried pulp	Controlled, packed tower, assume 50% of PM is NaOH	158
Kraft pulp	2611	Smelt dissolving tank	30700105	Sodium hydroxide	1310732	0.6 lb/ton air-dried pulp	Controlled, deslister pad plus packed tower, assume 50% of PM is NaOH	158
Kraft pulp	2611	Smelt dissolving tank	30700105	Sodium hydroxide	1310732	0.2 lb/ton air-dried pulp	Controlled, deslister pad plus shower, assume 50% PM is NaOH	158
Kraft pulp	2611	Smelt dissolving tank	30700105	Sodium hydroxide	1310732	0.5 lb/ton air-dried pulp	Controlled, deslister pad, assume 50% PM is NaOH, range 0.026-1.15 lb NaOH/ton air-dried pulp	158
Kraft pulp - sulfite pulping	2611	Brown stock washer	307001	Hydrogen sulfide	7783064	0.02 lb/ton air-dried pulp	Untreated, based on test data	97
Kraft pulp - sulfite pulping	2611	Noncontact recovery boiler without direct contact evaporator	307001	Hydrogen sulfide	7783064	0.1 lb/ton air-dried pulp	Apply when recovery furnace is operated optimally to control TRS	97
Kraft pulp - sulfite pulping	2611	Digester relief and blow tank	30700101	Hydrogen sulfide	7783064	0.03 lb/ton air-dried pulp	Untreated, based on test data	97
Kraft pulp - sulfite pulping	2611	Multiple effect evaporator	30700103	Hydrogen sulfide	7783064	1.1 lb/ton air-dried pulp	Untreated, based on test data	97
Kraft pulp - sulfite pulping	2611	Recovery boiler and direct evaporator	30700104	Hydrogen sulfide	7783064	12 lb/ton air-dried pulp	For venturi scrubber or ESP, can be reduced 50% with black liquor oxidation	97
Kraft pulp - sulfite pulping	2611	Smelt dissolving tank	30700105	Hydrogen sulfide	7783064	0.2 lb/ton air-dried pulp	For untreated, mesh pad or scrubber, can be lowered if low sulfite water used in tank	97
Kraft pulp - sulfite pulping	2611	Lime kiln	30700106	Hydrogen sulfide	7783064	0.5 lb/ton air-dried pulp	For untreated, scrubber or ESP	97
Kraft pulp - sulfite pulping	2611	Lime kiln	30700106	Hydrogen sulfide	7783064	0.03 lb/ton air-dried pulp	With efficient mud washing, optimal kiln operation, added caustic to scrubber water	97
Kraft pulp - sulfite pulping	2611	Turpentine condenser	30700107	Hydrogen sulfide	7783064	0.01 lb/ton air-dried pulp	Untreated	97
Landfill		Landfill gas	5	Chloroform	67663	0.61 x 10E-6 volume/volume landfill gas	Average of highest values for 20 landfills in S. California	93

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Landfill of HCB waste	4953	Fugitives	501006	Hexachlorobenzene	118741	4.1 x 10E-10 g/cm2/day	Based on engineering estimates, assumes landfill conditions, HCB volatilization	49
Landfill of HCB waste	4953	Fugitives	502006	Hexachlorobenzene	118741	4.1 x 10E-10 g/cm2 day	Based on engineering estimates, assumes landfill conditions, HCB volatilization	49
Lead smelting	3332	Entire process	303010	Radionuclides		42 nCi U-238/metric ton Pb	Rough estimate, control - baghouse, fabric filter or ESP, and acid plant	39
Lead smelting	3332	Entire process	303010	Radionuclides		42 nCi U-234/metric ton Pb	Rough estimate, control - baghouse, fabric filter or ESP, and acid plant	39
Lead smelting	3332	Entire process	303010	Radionuclides		3.6 nCi Th-230/metric ton Pb	Rough estimate, control - baghouse, fabric filter or ESP, and acid plant	39
Lead smelting	3332	Entire process	303010	Radionuclides		2.9 nCi Ra-226/metric ton Pb	Rough estimate, control - baghouse, fabric filter or ESP, and acid plant	39
Lead smelting	3332	Entire process	303010	Radionuclides		130 nCi Pb-210/metric ton Pb	Rough estimate, control - baghouse, fabric filter or ESP, and acid plant	39
Lead smelting	3332	Entire process	303010	Radionuclides		100 nCi Po-210/metric ton Pb	Rough estimate, control - baghouse, fabric filter or ESP, and acid plant	39
Lead smelting	3332	Entire process	303010	Radionuclides		3.5 nCi Th-232/metric ton Pb	Rough estimate, control - baghouse, fabric filter or ESP, and acid plant	39
Lead smelting	3332	Entire process	303010	Radionuclides		3.5 nCi Th-230/metric ton Pb	Rough estimate, control - baghouse, fabric filter or ESP, and acid plant	39
Lime kilns cofiring wastes	3274	Lime kiln	305016	Polychlorinated dibenzo-p-dioxins		Not detectable	One location, baghouse dust sample, fire petrol, coke + waste organics, detec. limit 0.005-0.25 mg/g	119
Lime kilns cofiring wastes	3274	Lime kiln	305016	Polychlorinated dibenzofurans		Not detectable	One location, baghouse dust sample, fire petrol, coke + waste organics, detec. limit 0.005-0.25	119

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Lime kilns coking wastes	3274	Lime kiln - stack	305016	Polychlorinated dibenzo-p-dioxins		Not detectable	ng/g One location, stack part. sample, fire petrol. coke + waste organics, detec. limit 0.034-2.0 ng/m3	119
Lime kilns coking wastes	3274	Lime kiln - stack	305016	Polychlorinated dibenzofurans		Not detectable	One location, stack part. sample, fire petrol. coke + waste organics, detec. limit 0.034-2.0 ng/m3	119
Linear alkylbenzene chlorination process	2869	Benzene azeotropic column vent	30121102	Benzene	71432	3.7 g/Mg LAB produced	Uncontrolled, all LAB chlorination emission factors based on a 90 Gg/yr hypothetical plant	132
Linear alkylbenzene chlorination process	2869	Benzene azeotropic column vent	30121102	Benzene	71432	0.00074 g/Mg LAB produced	Controlled, used as fuel, 99.98% eff.	132
Linear alkylbenzene chlorination process	2869	Hydrochloric acid absorber vent	30121123	Benzene	71432	250 g/Mg LAB produced	Uncontrolled	132
Linear alkylbenzene chlorination process	2869	Hydrochloric acid absorber vent	30121123	Benzene	71432	0.05 g/Mg LAB produced	Controlled, used as fuel, 99.98% eff.	132
Linear alkylbenzene chlorination process	2869	Atmospheric wash decanter vent	30121124	Benzene	71432	12.3 g/Mg LAB produced	Uncontrolled	132
Linear alkylbenzene chlorination process	2869	Atmospheric wash decanter vent	30121124	Benzene	71432	0.0025 g/Mg LAB produced	Controlled, used as fuel, 99.98% eff.	132
Linear alkylbenzene chlorination process	2869	Benzene stripping column vent	30121125	Benzene	71432	3.7 g/Mg LAB produced	Uncontrolled	132
Linear alkylbenzene chlorination process	2869	Benzene stripping column vent	30121125	Benzene	71432	0.00074 g/Mg LAB produced	Controlled, used as fuel, 99.98% eff.	132
Linear alkylbenzene olefin process	2869	Benzene azeotropic column vent	30121101	Benzene	71432	3.7 g/Mg LAB produced	Uncontrolled, all LAB olefin process emission factors based on 90 Gg/yr hypothetical plant	132
Linear alkylbenzene olefin process	2869	Benzene azeotropic column vent	30121101	Benzene	71432	0.00074 g/Mg LAB produced	Controlled, used as fuel, 99.98% eff.	132
Linear alkylbenzene olefin process	2869	Hydrogen fluoride scrubber column vent	30121103	Benzene	71432	11 g/Mg LAB produced	Uncontrolled	132
Linear alkylbenzene olefin process	2869	Hydrogen fluoride scrubber	30121103	Benzene	71432	0.0022 g/Mg LAB produced	Controlled, used as fuel, 99.98% eff.	132

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
process		column vent					eff.	
Linear alkylbenzene olefin process	2869	Hydrogen fluoride scrubber column vent	30121103	Benzene	71432	1.1 g/Mg LAB produced	Controlled, flare, 90% eff.	132
Log-treating	2491	Creosote cool-down	307005	Anthracene	120127	0.0012 lbs/hr	Based on one sampling program at one facility	10
Log-treating	2491	Creosote cool-down	307005	Pentachlorophenol	87865	0.0012 lbs/hr	Based on one sampling program at one facility	10
Log-treating	2491	Creosote cool-down	307005	Naphthalene	91203	1.06 lbs/hr	Based on one sampling program at one facility	10
Log-treating	2491	Creosote conditioning	30700501	Anthracene	120127	0.0009 lbs/hr	Based on one sampling program at one facility	10
Log-treating	2491	Creosote conditioning	30700501	Pentachlorophenol	87865	0.0009 lbs/hr	Based on one sampling program at one facility	10
Log-treating	2491	Pentachlorophenol conditioning	30700597	Anthracene	120127	0.0011 lbs/hr	Based on one sampling program at one facility	10
Log-treating	2491	Pentachlorophenol cool-down	30700597	Anthracene	120127	0.0009 lbs/hr	Based on one sampling program at one facility	10
Log-treating	2491	Pentachlorophenol treating - fugitive	30700597	Anthracene	120127	0.012 lbs/hr	Based on one sampling program at one facility	10
Log-treating	2491	Pentachlorophenol conditioning	30700597	Pentachlorophenol	87865	0.0011 lbs/hr	Based on one sampling program at one facility	10
Log-treating	2491	Pentachlorophenol cool-down	30700597	Pentachlorophenol	87865	0.0009 lbs/hr	Based on one sampling program at one facility	10
Log-treating	2491	Pentachlorophenol treating - fugitive	30700597	Pentachlorophenol	87865	0.72 lbs/hr	Based on one sampling program at one facility	10
Log-treating	2491	Pentachlorophenol conditioning	30700597	Naphthalene	91203	2.29 lbs/hr	Based on one sampling program at one facility	10
Log-treating	2491	Pentachlorophenol cool-down	30700597	Naphthalene	91203	0.99 lbs/hr	Based on one sampling program at one facility	10
Log-treating	2491	Pentachlorophenol treating - fugitive	30700597	Naphthalene	91203	0.24 lbs/hr	Based on one sampling program at one facility	10
Log-treating (pressure	2491	Creosote conditioning	30700501	Naphthalene	91203	2.2 lbs/hr	Based on one sampling program	10

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
(treating)							one facility	
Maleic anhydride production	2865	Process emissions	301100	Xylene	1330207	11.6 kg/Mg product	Engineering judgment, see EPA Source Assessment on Maleic Anhydride	67
Maleic anhydride production	2865	Storage emissions	301100	Xylene	1330207	0.075 kg/Mg product	Engineering judgment, see EPA Source Assessment on Maleic Anhydride	67
Maleic anhydride production	2865	Fugitive emissions	301100	Xylene	1330207	0.4 kg/Mg product	Engineering judgment, see EPA Source Assessment on Maleic Anhydride	67
Manganese chemical manufacturing	2819	Ore drying/grinding	301070	Manganese	7439965	8.9 lb/ton of material processed	Uncontrolled, calculated based on engineering judgment	107
Manganese chemical manufacturing	2819	Ore drying/grinding	301070	Manganese	7439965	0.009 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgment	107
Manganese chemical manufacturing	2819	Ore roasting	301070	Manganese	7439965	110 lb/ton of material processed	Uncontrolled, calculated based on engineering judgment	107
Manganese chemical manufacturing	2819	Ore roasting	301070	Manganese	7439965	0.22 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgment	107
Manganese-bearing ferroalloy prod/electric arc furnace proc.	3313	Receipt and storage of Mn ore	303	Manganese	7439965	0.90 lb/ton of Mn ore processed	Control status unspecified, calculated based on engineering judgment	107
Manganese-bearing ferroalloy prod/electric arc furnace proc.	3313	Crushing and sizing	303	Manganese	7439965	0.90 lb/ton of Mn ore processed	Control status unspecified, calculated based on engineering judgment	107
Manganese-bearing ferroalloy prod/electric arc furnace proc.	3313	Weighting and feeding	303	Manganese	7439965	0.80 lb/ton of Mn ore processed	Control status unspecified, calculated based on engineering judgment	107
Manufacture of acetone and phenol from sludge	2869	Storage tank vents combined	30109151	Phenol	108952	0.051 g/kg phenol produced	Uncontrolled, average of a calculated value and an industry estimate	15
Manufacture of acetone and phenol from sludge	2869	Product transport loading vents, combined	30109151	Phenol	108952	0.11 g/kg phenol produced	Control unknown, average of two industry estimates	15
Manufacture of acetone and phenol from sludge	2869	Sludge percolation vent	30109151	Naphthalene	91203	<0.0001 g naphthalene/kg	Controlled (adsorption or	15

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
phenol from cumene								
Manufacture of acetone and phenol from cumene	2869	Cumene peroxidation vent	30109151	Cumene	98028	phenol produced	condensation), based on industry sources	15
Manufacture of acetone and phenol from cumene	2869	Cleavage section vents, combined	30109151	Cumene	98028	0.86 g/kg phenol produced	Controlled (adsorption or condensation), based on industry sources	15
Manufacture of acetone and phenol from cumene	2869	Storage tank vents combined	30109151	Cumene	98028	0.14 g/kg phenol produced	Controlled (condensation), based on engineering judgement	15
Manufacture of electrical apparatus	3600	Handling of Hg or its compounds	3	Mercury	7439976	0.028 g/kg phenol produced	Controlled (floating roof), based on engineering judgement	15
Manufacture of pentachlorophenol	2879	General emissions	301033	Phenol	108952	4 kg/10E3 kg Hg used	Uncontrolled, based on engineering judgement	113
Manufacture of pentachlorophenol	2879	General emissions	301033	Pentachlorophenol	87665	1.0x10E-3 lb phenol vapor/lb active ingr	Control unknown, based on industry estimates	16
Manufacture of pesticide intermediates - Dicamba	2879	Fugitives and handling emissions	301033	Trichlorobenzene, 1,2,4-	120821	5.5 x 10E-4 lb/lb active ingredient	Control unknown, based on industry estimates	16
Manufacture of pesticide intermediates - Stirofos	2879	Fugitives and handling emissions	301033	Trichlorobenzene, 1,2,4-	120821	20 lb/ton pesticide produced	Based on emissions estimate of <1% lost total production	48
Manufacture of printed circuit boards	3679	Photoresist stripping	40100302	Methylene chloride	75092	20 lb/ton pesticide produced	Based on emissions estimate of <1% lost total production	48
Manufacture of printed circuit boards	3679	Photoresist stripping	40100302	Methylene chloride	75092	0.90 kg/kg fresh (virgin) MC used	Uncontrolled, based on material balance	76
Melamine-formaldehyde resin production	2821	Process	30101842	Formaldehyde	50000	0.78 kg/kg fresh (virgin) MC used	Controlled by carbon adsorber, based on material balance	76
Melamine-formaldehyde resin production	2821	Formaldehyde storage	30101842	Formaldehyde	50000	0.15-1.5 kg/kg of 37% formaldehyde used	Uncontrolled, basis unclear	106
Metallurgical coke production	3312	Coke ovens	303003	Nickel	7440020	0.03-0.2 kg/kg of 37% formaldehyde used	Uncontrolled, basis unclear	106
Methane chlorination	2869	Inert gas purge vent/product recovery condenser	30112511	Methylene chloride	75092	0.0016 lb/ton of coal processed	Uncontrolled, calculated based on source tests	110
Methane chlorination	2869	Fugitive	30112514	Methylene chloride	75092	1.4 x 10E-4 lb/lb product	Derived from site visit	13
						3.2 x 10E-4 lb/lb product	Derived from site visit	13

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Methane chlorination	2869	Storage	407060	Methylene chloride	75092	1.02 x 10e-3 lb/lb product	Derived from site visit	13
Methyl chloride chlorination	2869	Inert gas purge vent/product recovery condenser	30112511	Methylene chloride	75092	2.6 x 10e-5 lb/lb product	Derived from site visit	13
Methyl chloride chlorination	2869	Fugitive	30112514	Methylene chloride	75092	4.73 x 10e-4 lb/lb product	Derived from site visit	13
Methyl chloride chlorination	2869	Storage	407060	Methylene chloride	75092	2.46 x 10e-3 lb/lb product	Derived from site visit	13
Methyl chloroform production	2869	Condenser vents/distillation column	30112528	Methyl chloroform	71556	0.00072 lb/lb produced	From State air emission files	13
Methyl chloroform production	2869	Fugitive - equipment leaks	30112529	Methyl chloroform	71556	0.0010 lb/lb produced	Engineering estimate	13
Methyl chloroform production	2869	Storage	407220	Methyl chloroform	71556	0.00227 lb/lb produced	From State air emission files	13
Methyl chloroform production by hydrochlorination	2869	Heat transfer	30112525	Methyl chloroform	71556	9.0 g/kg produced	Control uncertain, based on mass balance and tests	95
Methyl chloroform production by hydrochlorination	2869	Separation	30112525	Methyl chloroform	71556	0.5 g/kg produced	Control uncertain, based on mass balance and tests	95
Methyl chloroform production by hydrochlorination	2869	Separation	30112525	Vinyl chloride	75014	0.5 g/kg produced	Control uncertain, based on mass balance and tests	95
Methyl chloroform production by hydrochlorination	2869	Heat transfer	30112525	Dichloroethane	75343	8.5 g/kg produced	Control uncertain, based on mass balance and tests	95
Methyl chloroform production by hydrochlorination	2869	Separation	30112525	Dichloroethane	75343	0.5 g/kg produced	Control uncertain, based on mass balance and tests	95
Methyl chloroform production by hydrochlorination	2869	Heat transfer	30112525	Hydrogen chloride	7647010	0.01 g/kg produced	Control uncertain, based on mass balance and tests	95
Methyl chloroform production by hydrochlorination	2869	Separation	30112525	Hydrogen chloride	7647010	0.01 g/kg produced	Control uncertain, based on mass balance and tests	95
Methyl chloroform production from ethane	2869	Recycle storage tank vents	30112525	Methyl chloroform	71556	0.09 g/kg methyl chloroform produced	Uncontrolled, based on hypothetical plant with 29,500 Mg/yr production capacity	1
Methyl chloroform production from ethane	2869	Recycle storage tank vents	30112525	Methyl chloroform	71556	0.01 g/kg methyl chloroform produced	Controlled by refriger. condenser, based on hypothetical plant with 29,500 Mg/yr production capacity	1
Methyl chloroform production from ethane	2869	Product storage tank vents	30112525	Methyl chloroform	71556	0.40 g/kg methyl chloroform produced	Uncontrolled, based on hypothetical plant with 29,500 Mg/yr production capacity	1

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Methyl chloroform production from ethane	2869	Product storage tank vents	30112525	Methyl chloroform	71556	0.061 g/kg methyl chloroform produced	Controlled by refrig. condenser, based on hypothetical plant with 29,500 Mg/yr production capacity	1
Methyl chloroform production from ethane	2869	Handling (loading of tank trucks and tank cars)	30112525	Methyl chloroform	71556	0.61 g/kg methyl chloroform produced	Assumes submerged loading, based on hypothetical plant with 29,500 Mg/yr production capacity	1
Methyl chloroform production from ethane	2869	Handling (loading of tank trucks and tank cars)	30112525	Methyl chloroform	71556	0.09 g/kg methyl chloroform produced	Controlled by refrig. condenser, based on hypothetical plant with 29,500 Mg/yr production capacity	1
Methyl chloroform production from ethane	2869	Distillation vents	30112528	Ethylene dichloride	107062	0.069 g/kg methyl chloroform produced	Uncontrolled, based on hypothetical plant with 29,500 Mg/yr production capacity	70
Methyl chloroform production from ethane	2869	Distillation vents	30112528	Ethylene dichloride	107062	0.001 g/kg methyl chloroform produced	Controlled by incinerator, based on hypothetical plant with 29,500 Mg/yr production capacity	70
Methyl chloroform production from ethane	2869	Distillation vents	30112528	Methyl chloroform	71556	0.16 g/kg methyl chloroform produced	Uncontrolled, based on hypothetical plant with 29,500 Mg/yr production capacity	1
Methyl chloroform production from ethane	2869	Distillation vents	30112528	Methyl chloroform	71556	0.003 g/kg methyl chloroform produced	Controlled by incinerator, based on hypothetical plant with 29,500 Mg/yr production capacity	1
Methyl chloroform production from vinyl chloride	2869	Hydrochlorinator vent condenser	301125	Ethylene dichloride	107062	8.5 kg/Mg of methyl chloroform prod.	Uncontrolled, basis unspecified	51
Methyl chloroform production from vinyl chloride	2869	Steam stripper vent condenser	301125	Ethylene dichloride	107062	0.5 kg/Mg of methyl chloroform prod.	Uncontrolled, basis unspecified	51
Methyl chloroform production from vinyl chloride	2869	Hydrochlorinator vent	301125	Ethylene dichloride	107062	<0.17 kg/Mg of methyl chloroform prod.	Controlled by incineration, calculated based on engineering judgement	51
Methyl chloroform production from vinyl chloride	2869	Intermediate process storage tank vents	30112525	Methyl chloroform	71556	0.09 g/kg methyl chloroform produced	Uncontrolled, based on hypothetical plant with 136,000 Mg/yr production capacity	1
Methyl chloroform production from vinyl chloride	2869	Product storage tank vents	30112525	Methyl chloroform	71556	0.40 g/kg methyl chloroform produced	Uncontrolled, based on hypothetical plant with 136,000 Mg/yr production capacity	1
Methyl chloroform production	2869	Handling (loading of tank trucks and tank cars)	30112525	Methyl chloroform	71556	0.61 g/kg methyl chloroform produced	Assumes submerged loading, based on hypothetical plant with 29,500 Mg/yr production capacity	1

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
from vinyl chloride		trucks and tank cars				produced	on hypothetical plant with 136,000 Mg/yr production capacity	
Methyl chloroform production from vinyl chloride	2869	Intermediate process storage tank vents	30112525	Methyl chloroform	71556	0.01 g/kg methyl chloroform produced	Controlled by refriger. condenser, based on hypothetical plant with 136,000 Mg/yr production capacity	1
Methyl chloroform production from vinyl chloride	2869	Product storage tank vents	30112525	Methyl chloroform	71556	0.061 g/kg methyl chloroform produced	Controlled by refriger. condenser, based on hypothetical plant with 136,000 Mg/yr production capacity	1
Methyl chloroform production from vinyl chloride	2869	Handling (loading of tank trucks and tank cars)	30112525	Methyl chloroform	71556	0.09 g/kg methyl chloroform produced	Controlled by refriger. condenser, based on hypothetical plant with 136,000 Mg/yr production capacity	1
Methyl chloroform production from vinyl chloride	2869	Distillation vents	30112528	Ethylene dichloride	107062	0.18 g/kg methyl chloroform produced	Uncontrolled, based on hypothetical plant with 136,000 Mg/yr production capacity	70
Methyl chloroform production from vinyl chloride	2869	Distillation vents	30112528	Ethylene dichloride	107062	0.004 g/kg methyl chloroform produced	Controlled by incinerator, based on hypothetical plant with 136,000 Mg/yr production capacity	70
Methyl chloroform production from vinyl chloride	2869	Distillation vents	30112528	Vinyl chloride	75014	0.007 g/kg methyl chloroform produced	Uncontrolled, based on hypothetical plant with 136,000 Mg/yr production capacity	70
Methyl chloroform production from vinyl chloride	2869	Distillation vents	30112528	Vinyl chloride	75014	0.0001 g/kg methyl chloroform produced	Controlled by incinerator, based on hypothetical plant with 136,000 Mg/yr production capacity	70
Methylene chloride production	2869	Entire process	30112510	Methylene chloride	75092	0.003 Mg/Mg MC produced	Reflects 1983 controls, based on 1983 aggregate emis. production totals for MC producers	69
Methylene chloride production - methane chlorination	2869	Inert gas purge vent/product recovery condenser	301125	Chloroform	67663	4.0 x 10E-6 lb/lb product	Derived from site visit	13
Methylene chloride production - methane chlorination	2869	Fugitive	30112514	Chloroform	67663	1.8 x 10E-4 lb/lb product	Derived from site visit	13
Methylene chloride production - methane chlorination	2869	Storage	407060	Chloroform	67663	2.89 x 10E-4 lb/lb product	Derived from site visit	13
Methylene chloride production - methyl chloride chlorination	2869	Inert gas purge vent/product recovery condenser	301125	Chloroform	67663	8.0 x 10E-6 lb/lb product	Derived from site visit	13
Methylene chloride production	2869	Fugitive	30112514	Chloroform	67663	2.47 x 10E-4 lb/lb product	Derived from site visit	13

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
- methyl chloride chlorination								
Methylene chloride production	2869	Storage	407060	Chloroform	7663	9.75 x 10E-4 lb/lb product	Derived from site visit	13
- methyl chloride chlorination								
Methylene di-para-phenylene isocyanate (MDI) production	2865	Process - general	301	Phosgene	75445	6.6 x 10E-6 lb/lb produced	Derived from State air emission files	13
Methylthiohydroxybutanoic acid production	2869	Acrolein vent collection header		Acrolein	107028	<0.02 kg/Mg HABA produced	Incinerator with scrubber	140
Mining	1061	General	305	Manganese	7439965	Negligible	High grade ore no longer mined in U.S.	13
Mining	1099	Entire process	303024	Mercury	7439976	0.005 kg/10E3 kg of ore mined	Uncontrolled, based on questionnaire survey responses by mine operators in 1960s	113
Mining and processing of vanadium	1094	Entire process	303024	Vanadium	7440622	25 lb/ton vanadium processed	Based on industry estimates (late 1960s/early 1970s), control status unspecified	56
Mixed xylene production, catalytic reformate	2869	Process emissions	30125815	Xylene	1330207	0.03 kg/Mg xylene produced	Based on inventory conducted by Texas Air Control Board	13
Mixed xylene production, catalytic reformate	2869	Storage emissions	30125815	Xylene	1330207	0.06 kg/Mg xylene produced	Based on inventory conducted by Texas Air Control Board	13
Mixed xylene production, catalytic reformate	2869	Fugitive emissions	30125815	Xylene	1330207	0.03 kg/Mg xylene produced	Based on inventory conducted by Texas Air Control Board	13
Mixed xylene production, coal-derived	2869	Process emissions	30125815	Xylene	1330207	0.50 kg/Mg xylene produced	Based on engineering judgement, Hydrosience	13
Mixed xylene production, coal-derived	2869	Storage emissions	30125815	Xylene	1330207	0.60 kg/Mg xylene produced	Based on engineering judgement, Hydrosience	13
Mixed xylene production, coal-derived	2869	Fugitive emissions	30125815	Xylene	1330207	0.15 kg/Mg xylene produced	Based on engineering judgement, Hydrosience	13
Mixed xylene production, pyrolysis gasoline	2869	Process emissions	30125815	Xylene	1330207	0.07 kg/Mg xylene produced	Site visit data	13
Mixed xylene production, pyrolysis gasoline	2869	Storage emissions	30125815	Xylene	1330207	0.30 kg/Mg xylene produced	Site visit data	13
Mixed xylene production, pyrolysis gasoline	2869	Fugitive emissions	30125815	Xylene	1330207	0.03 kg/Mg xylene produced	Site visit data	13

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Mixed xylene production, toluene disproportionation	2869	Fugitive emissions	30125815	Xylene	1330207	0.05 kg/Mg xylene produced	Based on engineering judgment, Hydrosience	13
Mixed xylene production, toluene disproportionation	2869	Process emissions	30125815	Xylene	1330207	0.05 kg/Mg xylene produced	Based on engineering judgment, Hydrosience, Inc.	13
Mixed xylene production, toluene disproportionation	2869	Storage emissions	30125815	Xylene	1330207	0.10 kg/Mg xylene produced	Based on engineering judgment, Hydrosience, Inc.	13
Mobile internal combustion sources		Automobile emissions		Polychlorinated dibenzo-p-dioxins		0.004 ng/g	Sample was a scraping from muffler of car using leaded gas, tetra, hexa, hepta, octa homologues only	119
Mobile internal combustion sources		Automobile emissions		Tetrachlorodibenzo-p-dioxins		47.7 ng/g	Samples of the filter extract (n = 5) from a car using leaded gas	119
Mobile internal combustion sources		Automobile emissions		Polychlorinated dibenzo-p-dioxins		0.01 - 0.08 ng/g	2 samples scraped from muffler, used unleaded gas w/ catalytic converter, tetra/hexa/hepta/octa homologues	119
Mobile internal combustion sources		Automobile emissions		Tetrachlorodibenzo-p-dioxins		37.4 ng/g	Sample of filter extract, car used unleaded gas + catalytic converter	119
Mobile internal combustion sources		Diesel truck emissions		Polychlorinated dibenzo-p-dioxins		0.39 - 0.40 ng/g	Samples of scrapings from 2 mufflers, diesel fuel used	119
Mobile internal combustion sources		Diesel car emissions		Tetrachlorodibenzo-p-dioxins		Not detectable	Samples of two filter extracts, diesel fuel used	119
Mobile internal combustion sources		Automobile exhaust		Toluene	100883	8.46 x 10E-4 lb/vehicle mile traveled	Engineering calculations	13
Mobile internal combustion sources		Automobiles		Tetrachlorodibenzo-p-dioxins, 2,3,7,8-	1746016	Not detectable	Sample was a scraping from muffler of car using leaded gas, detection limit = 0.002 ng/g	119
Mobile internal combustion sources		Automobile emissions		Tetrachlorodibenzo-p-dioxins, 2,3,7,8-	1746016	2.98 ng/g	Samples of the filter extract (n = 5) from a car using leaded gas	119
Mobile internal combustion sources		Automobile emissions		Tetrachlorodibenzo-p-dioxins, 2,3,7,8-	1746016	Not detectable	Sample - scraping from muffler, car used unleaded gas w/ catalytic converter, detec. Limit 0.003 ng/g	119
Mobile internal combustion sources		Automobile emissions		Tetrachlorodibenzo-p-dioxins, 2,3,7,8-	1746016	1.4 ng/g	Sample of filter extract, car used unleaded gas + catalytic converter	119

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Mobile internal combustion sources		Diesel truck emissions		Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	Not detectable - 0.003 ng/g	Samples of scrapings from 2 mufflers, diesel fuel used	119
Mobile internal combustion sources		Diesel car emissions		Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	Not detectable	Samples of two filter extracts, diesel fuel used	119
Mobile internal combustion sources		V-8 gasoline engine		Benzo(a)pyrene	50328	25 ug/mile	Uncontrolled, mounted on dynamometer, est. 8000-12,000 mileage, incl. 8-yr fr. condensor collect. tar	114
Mobile internal combustion sources		V-8 gasoline engine		Benzo(a)pyrene	50328	16 ug/mile	Uncontrolled, mounted on dynamometer, estimated 19,000-25,000 mileage	114
Mobile internal combustion sources		V-8 gasoline engine		Benzo(a)pyrene	50328	24 ug/mile	Uncontrolled, mounted on dynamometer, estimated 25,500-29,000 mileage	114
Mobile internal combustion sources		Diesel car engine		Benzo(a)pyrene	50328	3.9 ng/mg particulate	Range 1.3 - 7.3 ng/mg	114
Mobile internal combustion sources		8 cylinder car engine		Benzo(a)pyrene	50328	4.17 ug/mile	Catalyst removed, 1980 car	114
Mobile internal combustion sources		4 cylinder car engine		Benzo(a)pyrene	50328	0.07 ug/mile	4 cylinder catalyst, 1981 car	114
Mobile internal combustion sources		8 cylinder engine		Benzo(a)pyrene	50328	2.72 ug/mile	Precatalyst, 1974 car	114
Mobile internal combustion sources		Turbocharged diesel truck engine		Benzo(a)pyrene	50328	25 ug/kg fuel	1260 rpm, no load	114
Mobile internal combustion sources		Turbocharged diesel truck engine		Benzo(a)pyrene	50328	8 ug/kg fuel	1260 rpm, half load	114
Mobile internal combustion sources		Turbocharged diesel truck engine		Benzo(a)pyrene	50328	16 ug/kg fuel	1800 rpm, full load	114
Mobile internal combustion sources		Light duty gasoline vehicle, exhaust emissions		Benzene	71432	0.35-1.53% benzene of evaporative HCs	0.35-0.46% fuel-injected vehicles, 1.11-1.53% carbureted light duty gas vehicles, eng. judgement	132
Mobile internal combustion sources		Light duty gasoline vehicles, 3 way catalyst, exhaust emissions		Benzene	71432	5.12% benzene of exhaust HCs	Engineering judgement	132

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Mobile internal combustion sources		Light duty gasoline vehicles, 3-way and oxidation catalyst, exhaust emiss.		Benzene	71432	2.78% benzene of exhaust HC	Engineering judgement	132
Mobile internal combustion sources		Light duty gasoline vehicles, noncatalyst or oxidation catalyst, exhaust		Benzene	71432	3.95% benzene of exhaust HC	Engineering judgement	132
Mobile internal combustion sources		Light duty gasoline truck exhaust emissions		Benzene	71432	3.24% benzene of exhaust HC	Engineering judgement	132
Mobile internal combustion sources		Light duty gasoline truck exhaust emissions		Benzene	71432	1.1% benzene of evaporative HCs	Engineering judgement	132
Mobile internal combustion sources		Light duty diesel vehicle exhaust emissions		Benzene	71432	2.4% benzene of exhaust HC	Engineering judgement	132
Mobile internal combustion sources		Light duty diesel truck exhaust emissions		Benzene	71432	2.4% benzene of exhaust HC	Engineering judgement	132
Mobile internal combustion sources		Heavy duty gasoline vehicle exhaust emissions		Benzene	71432	3.48% benzene of exhaust HC	Engineering judgement	132
Mobile internal combustion sources		Heavy duty diesel vehicle exhaust emissions		Benzene	71432	1.10% benzene of exhaust HC	Engineering judgement	132
Mobile internal combustion sources		Motor vehicles	2	Ethylene dichloride	107062	1.4 mg/liter of leaded gasoline burned	Calculated based on engineering judgement	51
Mobile internal combustion sources		Automobiles (catalyst)	2	Formaldehyde	50000	2 - 32 mg/km	Based on emiss. test data, use lower value for low mileage cars/higher value for high mileage cars	106
Mobile internal combustion sources		Automobiles (catalyst)	2	Formaldehyde	50000	0.05-0.83 g/gal	Based on emiss. test data, use lower value for low mileage cars & higher value for high mileage cars	106
Mobile internal combustion sources		Automobiles (nonscatalyst)	2	Formaldehyde	50000	32 mg/km	Based on emiss. test data, use lower value for low mileage cars & higher value for high mileage cars	106
Mobile internal combustion sources		Automobiles (nonscatalyst)	2	Formaldehyde	50000	0.83 g/gal	Based on emiss. test data, use lower value for low mileage cars & higher value for high mileage cars	106
Mobile internal combustion sources		Automobiles (diesel)	2	Formaldehyde	50000	13 mg/km	Based on emiss. test data, use lower value for low mileage cars &	106

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Mobile internal combustion sources		Automobiles (diesel)	2	Formaldehyde	50000	0.33 g/gal	higher value for high mileage cars	106
Mobile internal combustion sources		Heavy-duty gasoline vehicles	2	Formaldehyde	50000	76 mg/km	Based on emiss. test data, use lower value for low mileage cars & higher value for high mileage cars	106
Mobile internal combustion sources		Heavy-duty gasoline vehicles	2	Formaldehyde	50000	0.64 g/gal	Based on emiss. test data, use lower value for low mileage cars & higher value for high mileage cars	106
Mobile internal combustion sources		Heavy-duty diesel vehicles	2	Formaldehyde	50000	55 mg/km	Based on emiss. test data, use lower value for low mileage cars & higher value for high mileage cars	106
Mobile internal combustion sources		Heavy-duty diesel vehicles	2	Formaldehyde	50000	0.55 g/gal	Based on emiss. test data, use lower value for low mileage cars & higher value for high mileage cars	106
Mobile internal combustion sources		Motorcycles, 2-cycle	2	Formaldehyde	50000	41 mg/km	Derived from total aldehyde emissions data	106
Mobile internal combustion sources		Motorcycles, 2-cycle	2	Formaldehyde	50000	3.3 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources		Motorcycles, 4-cycle	2	Formaldehyde	50000	17 mg/km	Derived from total aldehyde emissions data	106
Mobile internal combustion sources		Motorcycles, 4-cycle	2	Formaldehyde	50000	1.4 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources		Snowmobiles	2	Formaldehyde	50000	5.9 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources		Turbo prop or piston aircraft	2	Formaldehyde	50000	1.6 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	01	Gasoline powered farm equipment, tractor	2	Formaldehyde	50000	1.9 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	01	Gasoline powered farm equipment, miscellaneous	2	Formaldehyde	50000	1.1 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	01	Diesel powered farm equipment, tractor	2	Formaldehyde	50000	3.3 g/gal	Derived from total aldehyde emissions data	106

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Mobile internal combustion sources	01	Diesel powered farm equipment, miscellaneous	2	Formaldehyde	50000	2.8 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	16	Gasoline powered construction equipment, roller	2	Formaldehyde	50000	1.3 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	16	Gasoline powered construction equipment, miscellaneous	2	Formaldehyde	50000	1.2 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	16	Diesel powered construction equipment, tracklaying tractor	2	Formaldehyde	50000	1.7 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	16	Diesel powered construction equipment, wheeled tractor	2	Formaldehyde	50000	2.8 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	16	Diesel powered construction equipment, wheeled dozer	2	Formaldehyde	50000	1.6 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	16	Diesel powered construction equipment, scraper	2	Formaldehyde	50000	2.6 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	16	Diesel powered construction equipment, motor grader	2	Formaldehyde	50000	1.2 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	16	Diesel powered construction equipment, wheeled loader	2	Formaldehyde	50000	2.0 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	16	Diesel powered construction equipment, tracklaying loader	2	Formaldehyde	50000	1.0 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	16	Diesel powered construction equipment, off-highway truck	2	Formaldehyde	50000	2.1 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	16	Diesel powered construction equipment, roller	2	Formaldehyde	50000	1.7 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	16	Gasoline powered construction equipment, wheeled tractor	2	Formaldehyde	50000	1.6 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	16	Gasoline powered construction equipment, motor grader	2	Formaldehyde	50000	1.6 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	16	Gasoline powered construction equipment, wheeled loader	2	Formaldehyde	50000	1.3 g/gal	Derived from total aldehyde emissions data	106
Mobile internal combustion sources	16	Diesel powered construction equipment, miscellaneous	2	Formaldehyde	50000	1.8 g/gal	Derived from total aldehyde emissions data	106

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Mobile internal combustion sources	401	Locomotives	2	Formaldehyde	50000	1.5 g/gal	Derived from total aldehyde emission test data	106
Mobile internal combustion sources	45	Jet aircraft	2	Formaldehyde	50000	1.9 g/gal	Derived from total aldehyde emissions data	106
Monomer, and dichlorobenzene production, direct chlorination	2869	Absorption	30112535	Chlorobenzene	108907	0.05 g/kg produced	Control uncertain, based on tests and mass balance	95
Monomer, and dichlorobenzene production, direct chlorination	2869	Absorption	30112535	Dichlorobenzenes	25321226	0.001 g/kg produced	Control uncertain, based on tests and mass balance	95
Monomer, and dichlorobenzene production, direct chlorination	2869	Absorption	30112535	Benzene	71432	0.002 g/kg produced	Control uncertain, based on tests and mass balance	95
Monomer, and dichlorobenzene production, direct chlorination	2869	Absorption	30112535	Hydrogen chloride	7647010	0.06 g/kg produced	Control uncertain, based on tests and mass balance	95
Municipal waste combustion	4953	Mass burn	5	Tetrachlorodibenzo-p-dioxins		0.20 - 1200 ng/Ma3 @ 12% CO2	Developed from test data w/ various controls - ESP or water spray humidifier/dry sorbent injection	117
Municipal waste combustion	4953	Modular	5	Tetrachlorodibenzo-p-dioxins		1.0 - 43.7 ng/Ma3 @ 12% CO2	Developed from test data, all uncontrolled	117
Municipal waste combustion	4953	RF-fired	5	Tetrachlorodibenzo-p-dioxins		3.5 - 260 ng/Ma3 @ 12% CO2	Developed from test data, most ESP controlled, one with ESP/cyclone	117
Municipal waste combustion	4953	Mass burn	5	Tetrachlorodibenzofurans		0.32 - 4600 ng/Ma3 @ 12% CO2	Developed from test data, w/ various controls - ESP or water spray humidifier/dry sorbent injection	117
Municipal waste combustion	4953	Modular	5	Tetrachlorodibenzofurans		12.2 - 345 ng/Ma3 @ 12% CO2	Developed from test data, all uncontrolled	117
Municipal waste combustion	4953	RF-fired	5	Tetrachlorodibenzofurans		22 - 680 ng/Ma3 @ 12% CO2	Developed from test data, most ESP controlled, one with ESP/cyclone	117
Municipal waste combustion	4953	Mass burn	5	Pentachlorodibenzo-p-dioxins		1.1 - 11,000 ng/Ma3 @ 12% CO2	Developed from test data, w/ various controls - ESP or water spray humidifier/dry sorbent	117

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Mobile internal combustion sources	401	Locomotives	2	Formaldehyde	50000	1.5 g/gal	Derived from total aldehyde emission test data	106
Mobile internal combustion sources	45	Jet aircraft	2	Formaldehyde	50000	1.9 g/gal	Derived from total aldehyde emissions data	106
Mono-, and dichlorobenzene production, direct chlorination	2869	Absorption	30112535	Chlorobenzene	108907	0.03 g/kg produced	Control uncertain, based on tests and mass balance	95
Mono-, and dichlorobenzene production, direct chlorination	2869	Absorption	30112535	Dichlorobenzenes	25321226	0.001 g/kg produced	Control uncertain, based on tests and mass balance	95
Mono-, and dichlorobenzene production, direct chlorination	2869	Absorption	30112535	Benzene	71432	0.002 g/kg produced	Control uncertain, based on tests and mass balance	95
Mono-, and dichlorobenzene production, direct chlorination	2869	Absorption	30112535	Hydrogen chloride	7647010	0.06 g/kg produced	Control uncertain, based on tests and mass balance	95
Municipal waste combustion	4953	Mass burn	5	Tetrachlorodibenzo-p-dioxins		0.20 - 1200 ng/m ³ @ 12% CO ₂	Developed from test data w/ various controls - ESP or water spray humidifier/dry sorbent injection	117
Municipal waste combustion	4953	Modular	5	Tetrachlorodibenzo-p-dioxins		1.0 - 43.7 ng/m ³ @ 12% CO ₂	Developed from test data, all uncontrolled	117
Municipal waste combustion	4953	BoF-fired	5	Tetrachlorodibenzo-p-dioxins		3.5 - 260 ng/m ³ @ 12% CO ₂	Developed from test data, most ESP controlled, one with ESP/cyclone	117
Municipal waste combustion	4953	Mass burn	5	Tetrachlorodibenzofurans		0.32 - 4600 ng/m ³ @ 12% CO ₂	Developed from test data, w/ various controls - ESP or water spray humidifier/dry sorbent injection	117
Municipal waste combustion	4953	Modular	5	Tetrachlorodibenzofurans		12.2 - 345 ng/m ³ @ 12% CO ₂	Developed from test data, all uncontrolled	117
Municipal waste combustion	4953	BoF-fired	5	Tetrachlorodibenzofurans		22 - 680 ng/m ³ @ 12% CO ₂	Developed from test data, most ESP controlled, one with ESP/cyclone	117
Municipal waste combustion	4953	Mass burn	5	Pentachlorodibenzo-p-dioxins		1.1 - 11,000 ng/m ³ @ 12% CO ₂	Developed from test data, w/ various controls - ESP or water spray humidifier/dry sorbent	117

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Municipal waste combustion	4953	Modular	5	Pentachlorodibenzo-p-dioxin		63 - 1540 ng/m ³ @ 12% CO ₂	Injection	117
Municipal waste combustion	4953	Boiler-fired	5	Pentachlorodibenzo-p-dioxin		54 - 2480 ng/m ³ @ 12% CO ₂	Developed from test data, all uncontrolled	117
Municipal waste combustion	4953	Mass burn	5	Pentachlorodibenzo-p-dioxin		0.423 - 15,000 ng/m ³ @ 12% CO ₂	Developed from test data, most ESP controlled, one with ESP/cyclone	117
Municipal waste combustion	4953	Modular	5	Pentachlorodibenzo-p-dioxin		97 - 1810 ng/m ³ @ 12% CO ₂	Developed from test data, all uncontrolled	117
Municipal waste combustion	4953	Boiler-fired	5	Pentachlorodibenzo-p-dioxin		135 - 9100 ng/m ³ @ 12% CO ₂	Developed from test data, most ESP controlled, one with ESP/cyclone	117
Municipal waste combustion	4953	Mass burn with waterwall	5	Tetrachlorodibenzo-p-dioxin, total		6.34 - 3020 ug/Mg feed	n = 7, 4 locations, controlled with an ESP	118
Municipal waste combustion	4953	Mass burn with waterwall	5	Tetrachlorodibenzo-p-dioxin, total		19.9 - 3500 ng/m ³ @ 12% CO ₂	n = 8, 3 locations, controlled with an ESP	118
Municipal waste combustion	4953	Mass burn with waterwall	5	Pentachlorodibenzo-p-dioxin, total		2.99 - 2700 ng/m ³ @ 12% CO ₂	n = 9, 4 locations, controlled with an ESP	118
Municipal waste combustion	4953	Mass burn with waterwall	5	Pentachlorodibenzo-p-dioxin, total		11.7 - 6800 ug/Mg feed	n = 5, 3 locations, controlled with an ESP	118
Municipal waste combustion	4953	Mass burn with waterwall	5	Hexachlorodibenzo-p-dioxin, total		5.1 - 3190 ng/m ³ @ 12% CO ₂	n = 10, 6 locations, controlled with an ESP	118
Municipal waste combustion	4953	Mass burn with waterwall	5	Hexachlorodibenzo-p-dioxin, total		16 - 8090 ug/Mg feed	n = 6, 4 locations, controlled with an ESP	118
Municipal waste combustion	4953	Mass burn with waterwall	5	Heptachlorodibenzo-p-dioxin, total		4.43 - 2680 ng/m ³ @ 12% CO ₂	n = 10, 6 locations, controlled with an ESP	118
Municipal waste combustion	4953	Mass burn with waterwall	5	Heptachlorodibenzo-p-dioxin, total		17.4 - 7320 ug/Mg feed	n = 6, 4 locations, controlled with an ESP	118
Municipal waste combustion	4953	Mass burn with waterwall	5	Octachlorodibenzo-p-dioxin, total		3.39 - 509 ng/m ³ @ 12% CO ₂	n = 10, 6 locations, controlled with an ESP	118
Municipal waste combustion	4953	Mass burn with waterwall	5	Octachlorodibenzo-p-dioxin, total		12.8 - 1930 ug/Mg feed	n = 6, 4 locations, controlled with an ESP	118

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	BCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Municipal waste combustion	4953	Mass burn with waterwall	5	Hexachlorodibenzofuran, 1,2,3,7,8,9-		0 - 4.3 ng/m3 @ 12% CO2	n = 6, 3 locations, controlled with an ESP	118
Municipal waste combustion	4953	ESP catch - fly ash	5	Polychlorinated dioxins, total		Not detectable - 2996 ng/g	Appr. 60 sites tested, homologue data given in refer., isomer data may be avail. from indiv. refer.	116
Municipal waste combustion	4953	ESP catch - fly ash	5	Tetrachlorodibenzo-p-dioxins		Not detectable - 110 ng/g	Appr. 60 sites tested, homologue data given in refer., isomer data may be avail. from indiv. refer.	116
Municipal waste combustion	4953	ESP catch - fly ash	5	Polychlorinated furans, total		Not detectable - 2036 ng/g	Appr. 60 sites tested, homologue data given in refer., isomer data may be avail. from indiv. refer.	116
Municipal waste combustion	4953	ESP catch - fly ash	5	Tetrachlorodibenzofurans		Not detectable - 300 ng/g	Appr. 60 sites tested, homologue data given in refer., isomer data may be avail. from indiv. refer.	116
Municipal waste combustion	4953	Stack - fly ash	5	Polychlorinated dioxins, total		1540 ng/m3	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Municipal waste combustion	4953	Stack - fly ash	5	Polychlorinated dioxins, total		220 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Municipal waste combustion	4953	Stack - fly ash	5	Tetrachlorodibenzo-p-dioxins		57 ng/m3	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Municipal waste combustion	4953	Stack - fly ash	5	Tetrachlorodibenzo-p-dioxins		2 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Municipal waste combustion	4953	Stack - fly ash	5	Polychlorinated furans, total		1322 ng/m3	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Municipal waste combustion	4953	Stack - fly ash	5	Polychlorinated furans, total		85 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Municipal waste combustion	4953	Stack - fly ash	5	Tetrachlorodibenzofurans		161 ng/m3	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Municipal waste combustion	4953	Stack - fly ash	5	Tetrachlorodibenzofurans		7 ng/g	One site tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Municipal waste combustion	4953	Flue gas from stack - fly ash	5	Polychlorinated dioxins, total		45.4 - 906 ng/m3	Four sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Municipal waste combustion	4953	Flue gas from stack - fly ash	5	Tetrachlorodibenzo-p-dioxins		3.05 - 128 ng/m3	Four sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Municipal waste combustion	4953	Flue gas from stack - fly ash	5	Polychlorinated furans, total		460.3 - 1212 ng/m3	Four sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Municipal waste combustion	4953	Flue gas from stack - fly ash	5	Tetrachlorodibenzofurans		10.6 - 309 ng/m3	Four sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Municipal waste combustion	4953	Mass burn with waterwall	5	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	0.101 - 62.5 ng/m3 @ 12% CO2	n = 10, 6 locations, controlled with an ESP	118
Municipal waste combustion	4953	Mass burn with waterwall	5	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	0.39 - 289 ug/Mg feed	n = 6, 4 locations, controlled with an ESP	118
Municipal waste combustion	4953	ESP catch - fly ash	5	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	Not detectable - 100 ng/g	Appr. 60 sites tested, homologue data given in refer., isomer data may be avail. from indiv. refer.	116
Municipal waste combustion	4953	Flue gas from stack - fly ash	5	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	0.41 - 1.7 ng/m3	Four sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Municipal waste combustion	4953	Mass burn with waterwall	5	Hexachlorodibenzo-p-dioxin, 1,2,3,7,8,9-	1942873	0 - 4.6 ng/m3 @ 12% CO2	n = 6, 4 locations, controlled with an ESP	118
Municipal waste combustion	4953	Mass burn with waterwall	5	Hexachlorodibenzo-p-dioxin, 1,2,3,6,7,8-	34465468	0.37 - 11 ng/m3 @ 12% CO2	n = 6, 4 locations, controlled with an ESP	118
Municipal waste combustion	4953	Mass burn with waterwall	5	Pentachlorodibenzo-p-dioxin, 1,2,3,7,8-	40321764	0.19 - 3.8 ng/m3 @ 12% CO2	n = 6, 4 locations, controlled with an ESP	118
Municipal waste combustion	4953	Mass burn with waterwall	5	Tetrachlorodibenzofuran, 2,3,7,8-	51207319	0.04 - 448 ng/m3 @ 12% CO2	n = 6, 5 locations, controlled with an ESP	118
Municipal waste combustion	4953	Mass burn with waterwall	5	Tetrachlorodibenzofuran, 2,3,7,8-	51207319	0.95 - 1130 ug/Mg feed	n = 4, 3 locations, controlled with an ESP	118

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Municipal waste combustion	4953	ESP catch - fly ash	5	Tetrachlorodibenzofuran, 2,3,7,8-	51207319	Not detectable - 300 ng/g	Appr. 60 sites tested, homologue data given in refer., isomer data may be avail. from indiv. refer.	116
Municipal waste combustion	4953	Flue gas from stack - fly ash	5	Tetrachlorodibenzofuran, 2,3,7,8-	51207319	Not detectable - 10.3 ng/m ³	Four sites tested, homologue data given in refer., isomer data may be avail. from indiv. references	116
Municipal waste combustion	4953	Mass burn with waterwall	5	Pentachlorodibenzofuran, 2,3,4,7,8-	57117314	1.14 - 10.4 ng/m ³ @ 12% CO ₂	n = 6, 4 locations, controlled with an ESP	118
Municipal waste combustion	4953	Mass burn with waterwall	5	Hexachlorodibenzo-p-dioxin, 1,2,3,4,7,8-	57653857	0.15 - 6.1 ng/m ³ @ 12% CO ₂	n = 6, 4 locations, controlled with an ESP	118
Municipal waste combustion	4953	Entire process	5	Hydrogen chloride	7647010	0.062-4.88 lb/ton refuse	Depends on waste content, combustion conditions, control device	133
Municipal waste combustion	4953	Entire process	5	Hydrogen chloride	7647010	1.4 lb/ton refuse	For units which do not recover energy	133
Municipal waste combustion	4953	Entire process	5	Hydrogen chloride	7647010	4 lb/ton refuse	For waste-to-energy facilities	133
Municipal waste combustion	4953	Existing mass burn heat recovery facility	501001	Dioxins/dibenzofurans		0.00996 g/Mg of waste combusted	Controlled by ESP, based on source tests, emissions = 2,3,7,8-TCDF equivalent	118
Municipal waste combustion	4953	Projected or state-of-the-art mass burn heat recovery facility	501001	Dioxins/dibenzofurans		0.000058 g/Mg of waste combusted	Controlled by ESP, based on source tests, emissions = 2,3,7,8-TCDF equivalent	118
Municipal waste combustion	4953	Mass burn heat recovery facility	501001	Dioxins/dibenzofurans		0.0031 g/Mg of waste combusted	Controlled by ESP, based on source tests, emissions = 2,3,7,8-TCDF equivalent	118
Municipal waste combustion	4953	Existing refuse-derived fuel facility	501001	Dioxins/dibenzofurans		0.002 g/Mg of waste combusted	Controlled by ESP, based on source tests, emissions = 2,3,7,8-TCDF equivalent	118
Municipal waste combustion	4953	Projected or state-of-the-art refuse-derived fuel facility	501001	Dioxins/dibenzofurans		0.0012 g/Mg of waste combusted	Controlled by ESP, based on source tests, emissions = 2,3,7,8-TCDF equivalent	118
Municipal waste combustion	4953	Modular facility	501001	Dioxins/dibenzofurans		0.000649 g/Mg of waste combusted	Controlled by ESP, based on source tests, emissions = 2,3,7,8-TCDF equivalent	118

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Municipal waste combustion	4953	Existing mass burn heat recovery facility	501001	Dioxins/dibenzofurans		0.00006 g/Mg of waste combusted	Dry alk. scrubber & fabric filter contr., assumes 95% contr. effic., emis. = 2,3,7,8-TCDF equiv.	118
Municipal waste combustion	4953	Projected or state-of-the-art mass burn heat recovery facility	501001	Dioxins/dibenzofurans		0.000004 g/Mg of waste combusted	Dry alk. scrubber & fabric filter contr., assumes 95% contr. effic., emis. = 2,3,7,8-TCDF equiv.	118
Municipal waste combustion	4953	Mass burn nonheat recovery facility	501001	Dioxins/dibenzofurans		0.0002 g/Mg of waste combusted	Dry alk. scrubber & fabric filter contr., assumes 95% contr. effic., emis. = 2,3,7,8-TCDF equiv.	118
Municipal waste combustion	4953	Existing refuse-derived fuel facility	501001	Dioxins/dibenzofurans		0.0001 g/Mg of waste combusted	Dry alk. scrubber & fabric filter contr., assumes 95% contr. effic., emis. = 2,3,7,8-TCDF equiv.	118
Municipal waste combustion	4953	Projected or state-of-the-art refuse-derived fuel facility	501001	Dioxins/dibenzofurans		0.00008 g/Mg of waste combusted	Dry alk. scrubber & fabric filter contr., assumes 95% contr. effic., emis. = 2,3,7,8-TCDF equiv.	118
Municipal waste combustion	4953	Modular facility	501001	Dioxins/dibenzofurans		0.000004 g/Mg of waste combusted	Dry alk. scrubber & fabric filter contr., assumes 95% contr. effic., emis. = 2,3,7,8-TCDF equiv.	118
Municipal waste combustion	4953	Existing mass burn heat recovery facility	501001	Chlorobenzenes		0.32 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Projected or state-of-the-art mass burn heat recovery facility	501001	Chlorobenzenes		0.0089 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Mass burn nonheat recovery facility	501001	Chlorobenzenes		0.32 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Chlorobenzenes		0.14 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Modular facility	501001	Chlorobenzenes		0.018 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Existing mass burn heat recovery facility	501001	Chlorobenzenes		0.02 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Projected or state-of-the-art mass burn heat recovery facility	501001	Chlorobenzenes		0.0006 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Municipal waste combustion	4953	Mass burn nonheat recovery facility	501001	Chlorobenzenes		0.02 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Chlorobenzenes		0.009 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Modular facility	501001	Chlorobenzenes		0.001 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Existing mass burn heat recovery facility	501001	Chlorophenols		0.46 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Projected or state-of-the-art mass burn heat recovery facility	501001	Chlorophenols		0.018 g/Mg of waste combusted	Controlled by ESP, based on source test	118
Municipal waste combustion	4953	Mass burn nonheat recovery facility	501001	Chlorophenols		0.46 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Chlorophenols		0.16 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Modular facility	501001	Chlorophenols		0.018 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Existing mass burn heat recovery facility	501001	Chlorophenols		0.03 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Projected or state-of-the-art mass burn heat recovery facility	501001	Chlorophenols		0.001 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Mass burn nonheat recovery facility	501001	Chlorophenols		0.03 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Chlorophenols		0.01 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Modular facility	501001	Chlorophenols		0.001 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Municipal waste combustion	4953	Existing mass burn heat recovery facility	501001	Polychlorinated biphenyls	1336363	0.0021 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Municipal waste combustion	4953	Projected or state-of-the-art mass burn heat recovery facility	501001	Polychlorinated biphenyls	1336363	0.00021 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Municipal waste combustion	4953	Mass burn nonheat recovery facility	501001	Polychlorinated biphenyls	1336363	0.0021 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Polychlorinated biphenyls	1336363	1.4 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Municipal waste combustion	4953	Modular fuel facility	501001	Polychlorinated biphenyls	1336363	0.0045 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Municipal waste combustion	4953	Existing mass burn heat recovery facility	501001	Polychlorinated biphenyls	1336363	0.0001 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Projected or state-of-the-art mass burn heat recovery facility	501001	Polychlorinated biphenyls	1336363	0.00001 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Mass burn nonheat recovery facility	501001	Polychlorinated biphenyls	1336363	0.0001 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Polychlorinated biphenyls	1336363	0.09 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Modular facility	501001	Polychlorinated biphenyls	1336363	0.0003 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Mass burn, water wall facility	501001	Chromium (+6)	18540299	9476 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Mass burn, refractory facility	501001	Chromium (+6)	18540299	415 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Chromium (+6)	18540299	10,912 mg/kg controlled partic. emis.	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Modular facility	501001	Chromium (+6)	18540299	818 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Municipal waste combustion	4953	Existing mass burn heat recovery facility	501001	Formaldehyde	50000	5.2 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Projected or state-of-the-art mass burn heat recovery facility	501001	Formaldehyde	50000	2.5 g/Mg of waste combusted	Controlled by ESP, based on source test	118
Municipal waste combustion	4953	Mass burn northeast recovery facility	501001	Formaldehyde	50000	5.2 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Formaldehyde	50000	1.1 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Modular facility	501001	Formaldehyde	50000	1.3 g/Mg of waste combusted	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Existing mass burn heat recovery facility	501001	Formaldehyde	50000	0.3 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Projected or state-of-the-art mass burn heat recovery facility	501001	Formaldehyde	50000	0.2 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Mass burn northeast recovery facility	501001	Formaldehyde	50000	0.3 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Formaldehyde	50000	0.07 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Modular facility	501001	Formaldehyde	50000	0.08 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Mass burn, water wall incinerator	501001	Benz(a)pyrene	50328	48 ng/Mg waste burned	ESP	114
Municipal waste combustion	4953	RFI fired	501201	Benz(a)pyrene	50328	131 ng/Mg waste burned	ESP	114
Municipal waste combustion	4953	Mass burn heat recovery facility	501001	Benz(a)pyrene	50328	0.048 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Municipal waste combustion	4953	Mass burn northeast recovery facility	501001	Benz(a)pyrene	50328	0.048 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Benz(a)pyrene	50328	0.13 g/Mg of waste combusted	Controlled by ESP, based on source	118

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Municipal waste combustion	4953	Modular facility	501001	Benzo(a)pyrene	50328	0.0038 g/Mg of waste combusted	test data	118
Municipal waste combustion	4953	Mass burn heat recovery facility	501001	Benzo(a)pyrene	50328	0.003 g/Mg of waste combusted	Controlled by ESP, based on source test data	118
Municipal waste combustion	4953	Mass burn nonheat recovery facility	501001	Benzo(a)pyrene	50328	0.003 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Benzo(a)pyrene	50328	0.008 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Modular facility	501001	Benzo(a)pyrene	50328	0.0002 g/Mg of waste combusted	Controlled by dry alkaline scrubber & fabric filter, assumes 95% control efficiency	118
Municipal waste combustion	4953	Incinerator stack	501001	Aluminum	7429905	0.07 kg/Mg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, based on material balance for model incinerator	98
Municipal waste combustion	4953	Stack	501001	Manganese	7439965	0.05 lb/ton of waste incinerated	Uncontrolled, based on emission tests	107
Municipal waste combustion	4953	Stack	501001	Manganese	7439965	0.01 lb/ton of waste incinerated	Controlled by electrostatic precipitator, based on emission tests	107
Municipal waste combustion	4953	Incinerator stack	501001	Manganese	7439965	0.007 kg/Mg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, based on material balance for model incinerator	98
Municipal waste combustion	4953	Mass burn, water wall facility	501001	Mercury	7439976	8163 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Mass burn, refractory facility	501001	Mercury	7439976	6770 mg/kg controlled particulate emis.	Controlled by ESP, based on source test	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Mercury	7439976	868 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Modular facility	501001	Mercury	7439976	2340 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Municipal waste combustion	4953	Mass burn, water wall facility	501001	Mercury	7439976	5800 mg/kg controlled particulate emis.	Controlled by fabric filter, assumes 50% kg control efficiency	118
Municipal waste combustion	4953	Mass burn, refractory facility	501001	Mercury	7439976	4800 mg/kg controlled particulate emis.	Controlled by fabric filter, assumes 50% kg control efficiency	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Mercury	7439976	620 mg/kg controlled particulate emis.	Controlled by fabric filter, assumes 50% kg control efficiency	118
Municipal waste combustion	4953	Modular facility	501001	Mercury	7439976	1700 mg/kg controlled particulate emis.	Controlled by fabric filter, assumes 50% kg control efficiency	118
Municipal waste combustion	4953	Incinerator stack	501001	Mercury	7439976	0.001 kg/Mg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, calculated based on engineering judgement	98
Municipal waste combustion	4953	Mass burn facility	501001	Mercury	7439976	1.8 up/g charged material	Uncontrolled	40
Municipal waste combustion	4953	Refuse derived fuel facility	501001	Mercury	7439976	1.1 up/g charged material	Uncontrolled	40
Municipal waste combustion	4953	Modular incineration	501001	Mercury	7439976	2.5 up/g charged material	Uncontrolled	40
Municipal waste combustion	4953	Incinerator burning refuse only	501001	Nickel	7440020	0.003 lb/ton of solid waste incinerated	Controlled by wet scrubber, calculated based on source tests	110
Municipal waste combustion	4953	Incinerator burning refuse and sludge	501001	Nickel	7440020	0.005 lb/ton of solid waste incinerated	Controlled by wet scrubber, calculated based on source test	110
Municipal waste combustion	4953	Incinerator stack	501001	Nickel	7440020	0.001 kg/Mg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, based on material balance for model incinerator	98
Municipal waste combustion	4953	Incinerator stack	501001	Silver	7440224	0.001 kg/Mg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, based on material balance for model incinerator	98
Municipal waste combustion	4953	Mass burn, water wall facility	501001	Arsenic	7440382	335 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Mass burn, refractory facility	501001	Arsenic	7440382	11.9 mg/kg controlled particulate emis.	Controlled by ESP, based on source test	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Arsenic	7440382	90 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Modular facility	501001	Arsenic	7440382	353 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Municipal waste combustion	4953	Incinerator stack	501001	Barium	7440393	0.003 kg/Mg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, based on material balance for model incinerator	98
Municipal waste combustion	4953	Mass burn, water wall facility	501001	Beryllium	7440417	0.091 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Mass burn, refractory facility	501001	Beryllium	7440417	11.9 mg/kg controlled particulate emis.	Controlled by ESP, based on source test	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Beryllium	7440417	65 mg/kg controlled particulate emis.	Controlled by ESP, based on source test	118
Municipal waste combustion	4953	Modular facility	501001	Beryllium	7440417	0.036 mg/kg controlled particulate emis.	Controlled by ESP, based on source test	118
Municipal waste combustion	4953	Mass burn, water wall facility	501001	Cadmium	7440439	686 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Mass burn, refractory facility	501001	Cadmium	7440439	1228 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Cadmium	7440439	106 mg/kg controlled particulate emis.	Controlled by ESP, based on source test	118
Municipal waste combustion	4953	Modular facility	501001	Cadmium	7440439	3310 mg/kg controlled particulate emis.	Controlled by ESP, based on source tests	118
Municipal waste combustion	4953	Incinerator stack	501001	Cadmium	7440439	0.004 kg/Mg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, based on material balance for model incinerator	98
Municipal waste combustion	4953	Rocking grate	501001	Chromium	7440473	0.0024 kg/Mg solid waste incinerated	Wet scrubber, total chromium	161
Municipal waste combustion	4953	Traveling grate	501001	Chromium	7440473	0.0003 kg/Mg solid waste incinerated	ESP, total chromium	161
Municipal waste combustion	4953	Incinerator stack	501001	Chromium	7440473	0.002 kg/Mg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, based on material balance for model incinerator	98
Municipal waste combustion	4953	Incinerator stack	501001	Cobalt	7440484	0.00005 kg/Mg munic. solid waste-dry wt.	Controlled by spray-baffle scrubber, based on material balance for model incinerator	98
Municipal waste combustion	4953	Incinerator stack	501001	Copper	7440508	0.009 kg/Mg munic. solid waste (dry wt.)	Controlled by spray-baffle scrubber, based on material	98

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Municipal waste combustion	4953	Incinerator stack	501001	Zinc	7640666	0.5 kg/Mg munic. solid waste (dry wt.)	balance for model incinerator controlled by spray-baffle scrubber, based on material balance for model incinerator	98
Municipal waste combustion	4953	Mass burn, heat recovery facility	501001	Hydrogen chloride	7647010	4.13 kg/Mg of waste combusted	No HCl control, based on source tests	118
Municipal waste combustion	4953	Mass burn, nonheat recovery facility	501001	Hydrogen chloride	7647010	4.13 kg/Mg of waste combusted	No HCl control, based on source tests	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Hydrogen chloride	7647010	2.57 kg/Mg of waste combusted	No HCl control, based on source tests	118
Municipal waste combustion	4953	Modular facility	501001	Hydrogen chloride	7647010	3.58 kg/Mg of waste combusted	No HCl control, based on source tests	118
Municipal waste combustion	4953	Mass burn, heat recovery facility	501001	Hydrogen chloride	7647010	0.4 kg/Mg of waste combusted	Controlled by dry alkaline scrubber, assumes 90% HCl control efficiency	118
Municipal waste combustion	4953	Mass burn, nonheat recovery facility	501001	Hydrogen chloride	7647010	0.4 kg/Mg of waste combusted	Controlled by dry alkaline scrubber, assumes 90% HCl control efficiency	118
Municipal waste combustion	4953	Refuse-derived fuel facility	501001	Hydrogen chloride	7647010	0.3 kg/Mg of waste combusted	Controlled by dry alkaline scrubber, assumes 90% HCl control efficiency	118
Municipal waste combustion	4953	Modular facility	501001	Hydrogen chloride	7647010	0.4 kg/Mg of waste combusted	Controlled by dry alkaline scrubber, assumes 90% HCl control efficiency	118
Municipal waste combustion	4953	RDF unit	501001	Selenium	7782492	2 g/kg refuse	Calculated from max value of three tests, controlled with wet scrubber	19
Municipal waste combustion	4953	Mass burn unit	501001	Selenium	7782492	0.2 g/Mg feed	Calculated from three tests, average of range, uncontrolled, likely to exclude Se in vapor phase	21
Municipal waste combustion	4953	Mass burn unit	501001	Selenium	7782492	0.03 g/Mg feed	Calculated from three tests, average of range, ESP, likely to exclude Se in vapor phase	21
Municipal waste combustion	4953	Multiple chamber, reciprocating grate	50100101	PM		16.2 mg/Mg waste burned	Wet scrubber, represents particulate PM	114

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Municipal waste combustion	4953	Multiple chamber, reciprocating grate	50100101	POM		4.4 mg/Mg waste burned	ESP, represents particulate POM	114
Municipal waste combustion	4953	Multiple chamber, reciprocating grate	50100101	POM		6300 mg/Mg waste burned	ESP, represents both gaseous and particulate POM	114
Municipal waste combustion	4953	Rocking bar grate	50100101	POM		18.2 mg/Mg waste burned	Wet scrubber and ESP, represents both gaseous and particulate POM	114
Municipal waste combustion	4953	Multiple chamber, traveling grate incinerator	50100101	POM		40.4 mg/Mg waste burned	Settling chamber is control device, represents primarily particulate POM	114
Municipal waste combustion	4953	Multiple chamber reciprocating stoker grate incinerator	50100101	POM		312.9 mg/Mg waste burned	Uncontrolled, represents primarily particulate POM	114
Municipal waste combustion	4953	Refuse derived fuel incinerator	50100101	Acrolein	107028	1.6 x 10E-10 g/kg waste	Control not described	140
Municipal waste combustion	4953	Mass burn unit	50100101	Acrolein	107028	3.4 x 10E-9 g/kg waste	Control not described	140
Municipal waste combustion	4953	Modular burn unit	50100101	Acrolein	107028	5.5 x 10E-11 g/kg	Control not described	140
Municipal waste combustion	4953	Multiple chamber, traveling grate incinerator	50100101	Benzo(a)pyrene	50328	0.17 mg/Mg waste burned	Represents particulate POM, settling chamber	114
Municipal waste combustion	4953	Multiple chamber, reciprocating stoker grate	50100101	Benzo(a)pyrene	50328	13.5 mg/Mg waste burned	Uncontrolled, represents particulate POM	114
Municipal waste combustion	4953	Multiple chamber, reciprocating stoker grate	50100101	Benzo(a)pyrene	50328	0.20 mg/Mg waste burned	Wet scrubber, represents particulate POM	114
Municipal waste combustion	4953	Incinerator	50100101	Benzo(a)pyrene	50328	5.8 ng/m3	ESP, represents both gaseous and particulate POM	114
Municipal waste combustion	4953	Multiple hearth furnace	50100101	Chromium	7440473	0.0039 kg/Mg solid waste incinerated	Refuse only, wet scrubber, total chromium	161
Municipal waste combustion	4953	Multiple hearth furnace	50100101	Chromium	7440473	0.0045 kg/Mg solid waste incinerated	Refuse and sludge, wet scrubber, total chromium	161
Municipal waste combustion	4953	Modular burn unit stack	50100101	Acetaldehyde	75070	2.2 x 10E-10 g/kg waste burned	From test results, no data on controls	130
Municipal waste combustion	4953	Mass burn unit stack	50100102	Acetaldehyde	75070	4.3 x 10E-9 g/kg waste burned	From test results, no data on controls	130

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Municipal waste combustion	4953	Refuse derived fuel unit stack	50100121	Acetaldehyde	75070	1.5 x 10 ⁻⁹ g/kg waste burned	From test results, no data on controls	130
Municipal wastewater treatment	4941	Evaporation		Chloroform	67663	0.014 kg/1066 liter man wastewater disch		164
Naphthalene production		Process emissions		Naphthalene	91203	0.239 kg/Mg naphthalene produced	Based on POM emissions and 87% naphthalene	99
Naphthalene production		Storage		Naphthalene	91203	0.0227 kg/Mg produced	Based on data from State files and engineering judgement	99
Natural gas combustion		Double shell boilers, home heating		POM		0.48 pg/J heat input	Represents primarily particulate POM, uncontrolled	114
Natural gas combustion		Hot air furnace, home heating		POM		0.33 pg/J heat input	Represents primarily particulate POM, uncontrolled	114
Natural gas combustion		Wall space heater, home heating		POM		27.5 pg/J heat input	Represents primarily particulate POM, uncontrolled	114
Natural gas combustion		Domestic	1	Formaldehyde	50000	0.43 ng/J heat input	Control status unspecified, based on source tests	106
Natural gas combustion		Industrial	102006	Formaldehyde	50000	0.038 ng/J heat input	Control status unspecified, based on source tests	106
Natural gas combustion		Boilers, exhaust system	102006	Benzene	71432	1.18% by vol (or 4% by wt) benzene	South Coast study, California, engineering judgement	132
Natural gas combustion		Firetube boiler, process heater	10200601	POM		0.28 pg/J heat input	Represents primarily particulate POM, uncontrolled	114
Natural gas combustion		Scotch marine, hospital heating	10200601	POM		27.4 pg/J heat input	Represents primarily particulate POM, uncontrolled	114
Natural gas combustion		Commercial/institutional	103006	Formaldehyde	50000	0.095 ng/J heat input	Control status unspecified, based on source tests	106
Neoprene manufacture	2822	Dichlorobutene refining	301	Butadiene, 1,3-	106990	1.56 kg/Mg neoprene produced	Calculated from national emissions and national capacity, mostly controlled	78
Neoprene manufacture	2822	Dichlorobutene synthesis	301	Butadiene, 1,3-	106990	0.3 kg/Mg neoprene produced	Calculated from national emissions and national capacity, mostly controlled	78
Neoprene manufacture	2822	Equipment leaks	301	Butadiene, 1,3-	106990	1.1 kg/Mg neoprene produced	Uncontrolled, calculated from	78

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Neoprene manufacture	2822	Jet vent scrubber	301026	Butadiene, 1,3-	106990	0.047 g/kg neoprene produced	national emissions and national capacity	123
Neoprene manufacture	2822	Jet vent scrubber	301026	Chloroprene	107051	0.17 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Keels tank	301026	Chloroprene	107051	0.011 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Refined chloroprene tanks	301026	Chloroprene	107051	0.113 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Chloroprene vent condenser	301026	Chloroprene	107051	0.009 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Vacuum column jet	301026	Chloroprene	107051	0.29 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Recycle chloroprene tank	301026	Chloroprene	107051	0.003 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Batch polykettles	301026	Chloroprene	107051	1.1 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Vaporization from process wastewater	301026	Chloroprene	107051	0.035 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Batch polykettles	301026	Toluene	106683	0.018 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Aqueous waste vent	301026	Hydrogen chloride	7647010	0.00001 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Chloroprene vent condenser	301026	Hydrogen chloride	7647010	0.002 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Incrinerator	301026	Hydrogen chloride	7647010	0.016 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Strippers	30102611	Chloroprene	107051	0.63 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Emulsion storage tanks	30102611	Chloroprene	107051	0.17 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Tank car vents	30102611	Chloroprene	107051	0.21 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Wash bells	30102611	Chloroprene	107051	0.029 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Dryer exhaust	30102611	Chloroprene	107051	0.94 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Strippers	30102611	Toluene	106683	0.019 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Solution makeup tank	30102611	Toluene	106683	0.04 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Wash bells	30102611	Toluene	106683	0.15 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Dryer exhaust	30102611	Toluene	106683	2.0 g/kg neoprene	Engineering judgement	123

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Neoprene manufacture	2822	Blend tanks	30102614	Chloroprene	107051	0.16 g/kg neoprene	Engineering judgement	123
Neoprene manufacture	2822	Blend tanks	30102614	Toluene	108663	0.05 g/kg neoprene	Engineering judgement	123
Nickel-cadmium battery manufacture	3691	Total plant emissions	304	Nickel	7440020	8.8 lb/ton of nickel processed	Uncontrolled, based on industry responses to questionnaire survey	110
Nickel-cadmium battery manufacture	3691	Total emissions	304005	Cadmium	7440039	2 lb/ton Cd charged	Survey of companies	38
Nitrobenzene and aniline production	2865	General	30119501	Nitrobenzene	98953	8.0 x 10E-6 lb/lb produced	Based on site visit data	13
Nitrobenzene and aniline production	2865	Fugitive	30119580	Nitrobenzene	98953	3.1 x 10E-4 lb/lb produced	Based on site visit data	13
Nitrobenzene and aniline production	2865	Storage	407080	Nitrobenzene	98953	6.0 x 10E-6 lb/lb produced	Based on site visit data	13
Nitrobenzene production	2865	Benzene storage	301195	Benzene	71432	0.283 g/kg nitrobenzene	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Benzene storage	301195	Benzene	71432	0.0425 g/kg nitrobenzene	Controlled, internal floating roof, 85% eff., based on 90,000 Mg/yr capacity factor model plant	132
Nitrobenzene production	2865	Secondary emissions	301195	Benzene	71432	0.10 g/kg nitrobenzene	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Secondary: total with vent absorber or total with thermal oxidizer	301195	Benzene	71432	2.45 g/kg nitrobenzene	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Small benzene storage	301195	Benzene	71432	0.078 g/kg nitrobenzene	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Small benzene storage	301195	Benzene	71432	0.077 g/kg nitrobenzene	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Benzene storage	301195	Benzene	71432	0.281 g/kg nitrobenzene	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Benzene storage	301195	Benzene	71432	0.283 g/kg nitrobenzene produced	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Benzene storage	301195	Benzene	71432	0.0421 g/kg nitrobenzene produced	Controlled, floating roof, 85% eff., based on 150,000 Mg/yr capacity model plant	132

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Nitrobenzene production	2865	Secondary emissions	301195	Benzene	71432	0.10 g/kg nitrobenzene produced	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Secondary: total with vent absorber or thermal oxidizer	301195	Benzene	71432	2.19 g/kg nitrobenzene produced	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Reactor and separator	30119502	Benzene	71432	0.960 g/kg nitrobenzene	Uncontrolled, for 90,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Reactor and separator	30119502	Benzene	71432	0.960 g/kg nitrobenzene	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Waste-acid stripper	30119503	Benzene	71432	0.170 g/kg nitrobenzene	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Waste-acid stripper	30119503	Benzene	71432	0.170 g/kg nitrobenzene produced	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Wash and neutralization	30119504	Benzene	71432	0.0081 g/kg nitrobenzene	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Wash and neutralization	30119504	Benzene	71432	0.0776 g/kg nitrobenzene	Controlled, vent absorber, 94.6% eff., based on 90,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Wash and neutralization	30119504	Benzene	71432	0.0081 g/kg nitrobenzene produced	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Wash and neutralization	30119504	Benzene	71432	0.0774 g/kg nitrobenzene	Controlled, vent absorber, 94.6% eff., based on 150,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Nitrobenzene stripper	30119505	Benzene	71432	0.170 g/kg nitrobenzene	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Nitrobenzene stripper	30119505	Benzene	71432	0.0144 g/kg nitrobenzene	Controlled, thermal oxidizer, 99% eff., based on 90,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Nitrobenzene stripper	30119505	Benzene	71432	0.170 g/kg nitrobenzene	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Nitrobenzene stripper	30119505	Benzene	71432	0.0143 g/kg nitrobenzene	Controlled, thermal oxidizer, 99.0% eff., based on 150,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Waste-acid storage	30119506	Benzene	71432	0.051 g/kg nitrobenzene	Uncontrolled, based on 90,000	132

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Nitrobenzene production	2865	Waste-acid storage	30119506	Benzene	71432	0.048 g/kg nitrobenzene	Mg/yr capacity model plant	132
Nitrobenzene production	2865	Fugitive emissions	30119580	Benzene	71432	0.63 g/kg nitrobenzene	Uncontrolled, based on 150,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Fugitive emissions	30119580	Benzene	71432	0.165 g/kg nitrobenzene	Uncontrolled, based on 90,000 Mg/yr capacity model plant	132
Nitrobenzene production	2865	Fugitive emissions	30119580	Benzene	71432	0.38 g/kg nitrobenzene produced	Contr., 67.7% eff., detect/correct minor leaks/mech. seals, based on 90,000 Mg/yr cap. model plant	132
Nitrobenzene production	2865	Fugitive emissions	30119580	Benzene	71432	0.099 g/kg nitrobenzene produced	Uncontrolled, each plant, 42 pumps, 500 process valves, 20 pressure-relief valves	132
Nitrobenzene production	2865	Fugitive emissions	30119580	Benzene	71432	1.05 x 10E-3 lb/lb used	Contr., 67.7% eff., detect/correct leaks/mech. seals, 42 pumps, 500 process valves, 20 pres-rel val.	132
Nitrobenzene use as a chemical intermediate	2869	General	301	Nitrobenzene	98953	3.0 x 10E-4 lb/lb used	Based on engineering estimate	13
Nitrobenzene use as a chemical intermediate	2869	Fugitive	301	Nitrobenzene	98953	1.5 x 10E-4 lb/lb used	Based on engineering estimate	13
Nitrobenzene use as a chemical intermediate	2869	Storage	407080	Nitrobenzene	98953	12 lb/ton of vanadium processed	Based on engineering estimate	13
Nonferrous alloy production	33	Entire process	3	Vanadium	7440622	2 lb/ton of nickel charged	Control status unspecified, based on information obtained from two industrial sources	56
Nonferrous metals production	3341	Melt furnace at nickel-copper or copper-nickel facility	304	Nickel	7440020	2 lb/ton of nickel charged	Controlled by fabric filter, based on engineering judgement	110
Nonferrous metals production	3341	Melt furnace at superalloy facility	304	Nickel	7440020	2 lb/ton of nickel charged	Controlled by fabric filter, based on engineering judgement	110
Nonferrous metals production	3341	Melt furnace at permanent magnet alloy facility	304	Nickel	7440020	2 lb/ton of nickel charged	Controlled by fabric filter, based on engineering judgement	110
Nonferrous metals production	3341	Melt furnace at electrical alloy facility	304	Nickel	7440020	2 lb/ton of nickel charged	Controlled by fabric filter, based on engineering judgement	110
Nonferrous metals production	3341	Melt furnace at other nonferrous alloy facility	304	Nickel	7440020	2 lb/ton of nickel charged	Controlled by fabric filter, based on engineering judgement	110

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Monophenol production	2869	General	301	Phenol	108952	8.0 x 10E-4 lb/lb used	From engineering estimates	13
Monophenol production	2869	Fugitive	301	Phenol	108952	1.9 x 10E-4 lb/lb used	From engineering estimates	13
Monophenol production	2869	Storage	4070W4	Phenol	108952	1.0 x 10E-5 lb/lb used	From engineering estimates	13
Normal superphosphate production	2874	Curing building	30102806	Fluoride	16984406	3.8 lb/ton P2O5	Uncontrolled	97
Normal superphosphate production	2874	Mixer and dem	30102805	Fluoride	16984406	0.2 lb/ton P2O5	Met scrubber (97%)	97
Oil and coal combustion	49	Stack - particulate	102	Polychlorinated dibenzo-p-dioxins		68 ng/g	No penta homologue included, one location, TCDD detection = 20 ng/g	119
Oil and coal combustion	49	Stack - particulate	102	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	Not detectable	One location, detection limit = 10 ng/g	119
Oil combustion		Oil-fired boiler or furnace, util/commerc/industr/residential	1	Formaldehyde	50000	405 lb/10E12 Btu	Uncontrolled, based on emissions testing	36
Oil combustion		Industrial, commercial, and residential boilers	1	Lead	7439921	8.9 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement, assumed use distillate oil	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residential	1	Manganese	7439965	26 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residential	1	Manganese	7439965	11.96 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residential	1	Manganese	7439965	5.72 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		Residual oil-fired boilers, util/commerc/industr/residential	1	Manganese	7439965	2.86 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residential	1	Manganese	7439965	14 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		Distillate oil-fired boilers, util/commerc/industr/residential	1	Manganese	7439965	6.44 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/residenti	1	Manganese	7439965	3.08 lb/10E12 Btu	judgement Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/residenti	1	Manganese	7439965	1.54 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		al Residual oil-fired boiler, util/commerc/industr/residenti	1	Mercury	7439976	3.2 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Oil combustion		al Residual oil-fired boiler, util/commerc/industr/residenti	1	Mercury	7439976	3.2 lb/10E12 Btu	Controlled by multiclone, based on engineering judgement	36
Oil combustion		al Residual oil-fired boiler, util/commerc/industr/residenti	1	Mercury	7439976	2.4 lb/10E12 Btu	Controlled by ESP, based on engineering judgement	36
Oil combustion		al Residual oil-fired boiler, util/commerc/industr/residenti	1	Mercury	7439976	0.85 lb/10E12 Btu	Controlled by scrubber, based on engineering judgement	36
Oil combustion		al Distillate oil-fired boiler, util/commerc/industr/residenti	1	Mercury	7439976	3.0 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Oil combustion		al Distillate oil-fired boiler, util/commerc/industr/residenti	1	Mercury	7439976	3.0 lb/10E12 Btu	Controlled by multiclone, based on engineering judgement	36
Oil combustion		al Distillate oil-fired boiler, util/commerc/industr/residenti	1	Mercury	7439976	2.25 lb/10E12 Btu	Controlled by ESP, based on engineering judgement	36
Oil combustion		al Distillate oil-fired boiler, util/commerc/industr/residenti	1	Mercury	7439976	0.78 lb/10E12 Btu	Controlled by scrubber, based on engineering judgement	36
Oil combustion		al Residual oil-fired boilers, util/commerc/industr/residenti	1	Nickel	7440020	1260 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Oil combustion		al Residual oil-fired boilers, util/commerc/industr/residenti	1	Nickel	7440020	642.6 lb/10E12 Btu	Controlled by multiclone, based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Oil combustion		al Residual oil-fired boilers, util/commerc/industr/residenti al	1	Nickel	7440020	352.8 lb/10E12 Btu	Controlled by ESP, based on engineering judgement	36
Oil combustion		al Residual oil-fired boilers, util/commerc/industr/residenti al	1	Nickel	7440020	50.4 lb/10E12 Btu	Controlled by scrubber, based on engineering judgement	36
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Nickel	7440020	170 lb/10E12 Btu	Uncontrolled, based on engineering judgement	36
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Nickel	7440020	86.7 lb/10E12 Btu	Controlled by multiclone, based on engineering judgement	36
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Nickel	7440020	47.6 lb/10E12 Btu	Controlled by ESP, based on engineering judgement	36
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Nickel	7440020	6.8 lb/10E12 Btu	Controlled by scrubber, based on engineering judgement	36
Oil combustion		al Residual oil-fired boilers, util/commerc/industr/residenti al	1	Arsenic	7440382	19 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Arsenic	7440382	4.2 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Arsenic	7440382	2.06 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Arsenic	7440382	0.50 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/residenti al	1	Arsenic	7440382	0.42 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		al Residual oil-fired boilers, util/commerc/industr/residenti al	1	Arsenic	7440382	9.31 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Oil combustion	al	Residual oil-fired boilers, util/commerc/industr/resident	1	Arsenic	7440382	2.28 lb/10E12 Btu	judgement	36
Oil combustion	al	Residual oil-fired boilers, util/commerc/industr/resident	1	Arsenic	7440382	1.90 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion	al	Residual oil-fired boilers, util/commerc/industr/resident	1	Beryllium	7440417	4.2 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion	al	Residual oil-fired boilers, util/commerc/industr/resident	1	Beryllium	7440417	2.5 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion	al	Distillate oil-fired boilers, util/commerc/industr/resident	1	Beryllium	7440417	1.58 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion	al	Distillate oil-fired boilers, util/commerc/industr/resident	1	Beryllium	7440417	0.35 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion	al	Distillate oil-fired boilers, util/commerc/industr/resident	1	Beryllium	7440417	0.15 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion	al	Residual oil-fired boilers, util/commerc/industr/resident	1	Beryllium	7440417	2.65 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion	al	Residual oil-fired boilers, util/commerc/industr/resident	1	Beryllium	7440417	0.59 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion	al	Residual oil-fired boilers, util/commerc/industr/resident	1	Beryllium	7440417	0.25 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion	al	Residual oil-fired boilers, util/commerc/industr/resident	1	Cadmium	7440439	15.7 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion	al	Distillate oil-fired boilers, util/commerc/industr/resident	1	Cadmium	7440439	10.5 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/resident	1	Cadmium	7440439	7.45 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/resident	1	Cadmium	7440439	1.58 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/resident	1	Cadmium	7440439	0.63 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		al Residual oil-fired boilers, util/commerc/industr/resident	1	Cadmium	7440439	46.86 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Oil combustion		al Residual oil-fired boilers, util/commerc/industr/resident	1	Cadmium	7440439	9.90 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		al Residual oil-fired boilers, util/commerc/industr/resident	1	Cadmium	7440439	3.96 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		al Residual oil-fired boilers, util/commerc/industr/resident	1	Chromium	7440473	21 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/resident	1	Chromium	7440473	47.5 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/resident	1	Chromium	7440473	27.8 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/resident	1	Chromium	7440473	13.92 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion		al Distillate oil-fired boilers, util/commerc/industr/resident	1	Chromium	7440473	3.84 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion		al Residual oil-fired boilers, util/commerc/industr/resident	1	Chromium	7440473	12.18 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Oil combustion	al	Residual oil-fired boilers, util/commerc/industr/residenti	1	Chromium	7440473	6.09 lb/10E12 Btu	judgement Controlled with ESP, calculated based on engineering judgement	36
Oil combustion	al	Residual oil-fired boilers, util/commerc/industr/residenti	1	Chromium	7440473	1.68 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion	al	Residual oil-fired boilers, util/commerc/industr/residenti	1	Copper	7440508	278 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion	al	Distillate oil-fired boilers, util/commerc/industr/residenti	1	Copper	7440508	280 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement	36
Oil combustion	al	Distillate oil-fired boilers, util/commerc/industr/residenti	1	Copper	7440508	165.2 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Oil combustion	al	Distillate oil-fired boilers, util/commerc/industr/residenti	1	Copper	7440508	42 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion	al	Distillate oil-fired boilers, util/commerc/industr/residenti	1	Copper	7440508	25.2 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion	al	Residual oil-fired boilers, util/commerc/industr/residenti	1	Copper	7440508	165.2 lb/10E12 Btu	Controlled with multiclone, calculated based on engineering judgement	36
Oil combustion	al	Residual oil-fired boilers, util/commerc/industr/residenti	1	Copper	7440508	42.0 lb/10E12 Btu	Controlled with ESP, calculated based on engineering judgement	36
Oil combustion	al	Residual oil-fired boilers, util/commerc/industr/residenti	1	Copper	7440508	25.2 lb/10E12 Btu	Controlled with scrubber, calculated based on engineering judgement	36
Oil combustion	al	Residual oil-fired boilers, util/commerc/industr/residenti	1	Copper	7439921	28 lb/10E12 Btu	Uncontrolled, calculated based on engineering judgement, assumed use residual oil	36
Oil combustion		Utility boilers	101004	Lead				
Oil combustion		Distillate watertube boilers	10300501	POM		<0.12 ppb/j heat input	Uncontrolled	114

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Oil combustion		Scotch marine boilers, distillate oil	10300501	POM		17.7 pg/J	Uncontrolled	114
Oil combustion		Cast iron sectional boilers, distillate oil	10300501	POM		<14.9 pg/J	Uncontrolled, home heating application	114
Oil combustion		Hot air furnace, distillate oil	10300501	POM		<0.14 pg/J	Uncontrolled, same reference also lists <15.4 for same boiler/fuel type	114
Oil combustion	49	Boiler flue gas	1	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	Not detectable	Low ash, 2% sulfur oil, sampled after heat exch., before ESP, 2378-1000 detec. limit=<4.2-47.9 ng/m3	119
Oil combustion	49	Flue gas	1	Tetrachlorodibenzofuran, 2,3,7,8-	51207319	Not detectable	Low ash, 2% sulfur oil, sampled after heat exch., before ESP, 2378-1000 detec. limit=<0.67-41.3ng/m3	119
Oil combustion, commercial		Residual oil-fired tangential furnaces	103004	Vanadium	7440622	3660 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Oil combustion, commercial		Residual oil-fired wall furnaces	103004	Vanadium	7440622	3660 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Oil combustion, commercial		Tangential furnace, residual oil	103004	Selenium	7782492	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, commercial		Wall furnace, residual oil	103004	Selenium	7782492	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, commercial		Scotch marine boilers, residual oil	10300401	POM		0.95 pg/J heat input	Uncontrolled, represents benzo(a)pyrene only	114
Oil combustion, commercial		Distillate oil-fired tangential furnaces	103005	Vanadium	7440622	30.0 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, commercial		Distillate oil-fired wall furnaces	103005	Vanadium	7440622	30.0 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, commercial		Tangential furnace, distillate oil	103005	Selenium	7782492	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Oil combustion, commercial		Wall furnace, distillate oil	103005	Selenium	7782492	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, industrial		Tangential furnaces	102	Vanadium	7440622	260 pg/J	Controlled by scrubber, based on reported emissions and engineering judgement	54
Oil combustion, industrial		Tangential furnaces	102	Vanadium	7440622	1300 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Oil combustion, industrial		Wall furnaces	102	Vanadium	7440622	260 pg/J	Controlled by scrubber, based on reported emissions and engineering judgement	54
Oil combustion, industrial		Wall furnaces	102	Vanadium	7440622	1300 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Oil combustion, industrial		Tangential furnace	102	Selenium	7782492	2.0 pg/J	Controlled by scrubber, based on reported emissions data and engineering judgement	54
Oil combustion, industrial		Tangential furnace	102	Selenium	7782492	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, industrial		Wall furnace	102	Selenium	7782492	2.0 pg/J	Controlled by scrubber, based on reported emissions data and engineering judgement	54
Oil combustion, industrial		Wall furnace	102	Selenium	7782492	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, industrial		Steam atomized watertube, residual oil	10200401	PM		2.3 pg/J heat input	Uncontrolled, represents mostly particulate PM	114
Oil combustion, industrial		Watertube, residual oil	10200401	PM		0.63 pg/J heat input	Uncontrolled, represents both gaseous and particulate PM	114
Oil combustion, residential		Distillate oil-fired boilers		Vanadium	7440622	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, residential		Distillate oil-fired furnaces		Selenium	7782492	2.9 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Oil combustion, utility		Wall-fired, residual oil	10100401	POM		3.9 pg/J heat input	Uncontrolled, ave. of 4 values ranging from 0.45-12.3 pg/J, represents gaseous & particulate POM	114
Oil combustion, utility		Face-fired, residual oil	10100401	POM		0.37 pg/J heat input	Uncontrolled, represents both gaseous and particulate POM	114
Oil combustion, utility		Tangential-fired, residual oil	10100404	POM		2.5 pg/J heat input	Cyclone controls, represents both gaseous and particulate POM	114
Oil combustion, utility	4911	Residual oil-fired tangential furnaces	101004	Vanadium	7440622	303 pg/J	Controlled by ESP, based on reported emissions and engineering judgement	54
Oil combustion, utility	4911	Residual oil-fired tangential furnaces	101004	Vanadium	7440622	1516 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Oil combustion, utility	4911	Residual oil-fired wall furnaces	101004	Vanadium	7440622	303 pg/J	Controlled by ESP, based on reported emissions and engineering judgement	54
Oil combustion, utility	4911	Residual oil-fired wall furnaces	101004	Vanadium	7440622	1516 pg/J	Uncontrolled, based on reported emissions and engineering judgement	54
Oil combustion, utility	4911	Tangential, residual oil	101004	Selenium	7782492	2.0 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Oil combustion, utility	4911	Tangential, residual oil	101004	Selenium	7782492	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil combustion, utility	4911	Wall furnace, residual oil	101004	Selenium	7782492	2.0 pg/J	Controlled by ESP, based on reported emissions data and engineering judgement	54
Oil combustion, utility	4911	Wall furnace, residual oil	101004	Selenium	7782492	10.1 pg/J	Uncontrolled, based on reported emissions data and engineering judgement	54
Oil shale retorting	1311	Modified in situ retort		POM		3.3 g/hr	Based on offgas concentration and flow rate	114
Oil shale retorting	2911	Entire process		Mercury	7439976	2.2 x 10E-4 lbs/barrel oil produced	Includes Hg compound form, assumes fac. using 13,000 tons/day raw shale to prod. 12,000 bbl/day oil	40

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Open burning		Grass, leaves, branches	50300201	PM		2.5 - 9.2 mg/kg waste	Based on concentration measured in smoke plume	116
Open burning		Leaf burning	50300201	PM		10 - 22 mg/kg leaves	Based on lab tests	116
Open burning		Area source	50300201	Acetaldehyde	75070	0.36 - 0.73 g/kg wood burned	Estimated from a total aldehyde value of 5.2 g/kg	130
Open burning		Municipal refuse open burning	50300202	PM		0.5 - 4.7 mg/kg waste	Based on concentration measured in smoke plume	116
Open burning		Automobile tire burning	50300203	PM		240 mg/kg waste	Based on concentration measured in smoke plume	116
Open burning		Automobile body burning	50300203	PM		110 mg/kg waste	Based on concentration measured in smoke plume	116
Organics removal from wastewater - activated carbon	49	Regeneration of activated carbon using fluidized bed system - flue gas		Tetrachlorodibenzop-dioxins		0.06 - 0.3 ng/m3	No afterburner, prechlorin. of wastewater performed	119
Organics removal from wastewater - activated carbon	49	Regeneration of activated carbon using fluidized bed system - flue gas		Tetrachlorodibenzofurans		0.08 - 0.51 ng/m3	No afterburner, prechlorin. of wastewater performed	119
Organics removal from wastewater - activated carbon	49	Regeneration of activated carbon using fluidized bed system - particulate		Tetrachlorodibenzop-dioxins		36 - 66 ng/g	No afterburner, prechlorin. of wastewater performed	119
Organics removal from wastewater - activated carbon	49	Regeneration of activated carbon using fluidized bed system - particulate		Tetrachlorodibenzofurans		Not detectable - 265 ng/g	No afterburner, prechlorin. of wastewater performed, detection limit = 4 ng/g	119
Organics removal from wastewater - activated carbon	49	Regeneration of activated carbon using fluidized bed system - stack		Polychlorinated dibenzop-dioxins		1.58 ng/m3	With afterbur., postchlorin. of wastewater relative to activated carbon bed, octa, hepta homol. only	119
Organics removal from wastewater - activated carbon	49	Regeneration of activated carbon using fluidized bed system - recuperator		Polychlorinated dibenzop-dioxins		Not detectable - 3.71 ng/m3	With afterbur., postchlorin. of wastewater relative to activated carbon bed, detec. limit 0.006 ng/m3	119
Organics removal from wastewater - activated carbon	49	Regeneration of activated carbon using fluidized bed system - recuperator		Polychlorinated dibenzofurans		0.015 - 4.76 ng/m3	With afterbur., postchlorin. of wastewater relative to activated carbon bed, detec. limit 0.006 ng/m3	119
Organics removal from wastewater - activated carbon	49	Regeneration of activated carbon using fluidized bed system		Polychlorinated dibenzop-dioxins		Not detectable - 1.4 ng/m3	With afterbur., postchlorin. of wastewater relative to activated	119

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Organics removal from wastewater - activated carbon	49	system - afterburner Regeneration of activated carbon using fluidized bed system - afterburner		Polychlorinated dibenzofurans		0.19 - 0.39 ng/m ³	carbon bed, detec. limit 0.006 ng/m ³	119
Organics removal from wastewater - activated carbon	49	Regeneration of activated carbon using fluidized bed system - flue gas		Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	0.01 - 0.21 ng/m ³	With afterburner, postchlorin. of wastewater relative to activated carbon bed, detec. limit 0.006 ng/m ³	119
Organics removal from wastewater - activated carbon	49	Regeneration of activated carbon using fluidized bed system - particulate		Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	4.3 - 51 ng/g	No afterburner, prechlorin. of wastewater performed	119
Organics removal from wastewater - activated carbon	49	Regeneration of activated carbon using fluidized bed system - stack		Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	Not detectable	With afterburner, postchlorin. of wastewater relative to activated carbon bed, detec. limit 0.006 ng/m ³	119
Organics removal from wastewater - activated carbon	49	Regeneration of activated carbon using fluidized bed system - afterburner		Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	Not detectable	With afterburner, postchlorin. of wastewater relative to activated carbon bed, detec. limit 0.006 ng/m ³	119
Organics removal from wastewater - activated carbon	49	Regeneration of activated carbon using fluidized bed system - recuperator		Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	Not detectable	With afterburner, postchlorin. of wastewater relative to activated carbon bed, detec. limit 0.006 ng/m ³	119
Oxybisphenoxarsine and 1,3-dicyanate production	2899	Deaeration of aqueous waste		Chloroform	67663	0.81 g/s	Uncontrolled	160
Oxybisphenoxarsine production	2899	Plantwide		Chloroform	67663	0.66 g/s	Carbon adsorption	160
PCP-treated wood combustion	495	Incinerator	5	Polychlorinated dibenzo-p-dioxins		1520 ng/m ³	Flue gas sample	119
PCP-treated wood combustion	495	Fluidized bed system	5	Polychlorinated dibenzo-p-dioxins		326 ng/g	Fly ash sample	119
PCP-treated wood combustion	495	Incinerator	5	Polychlorinated dibenzofurans		587 ng/m ³	Flue gas sample	119
PCP-treated wood combustion	495	Fluidized bed system	5	Polychlorinated dibenzofurans		241 ng/g	Fly ash sample	119
PCP-treated wood combustion	495	Incinerator	501	Polychlorinated dibenzo-p-dioxins		111,540 - 392,000 ng/g feed	Based on pilot-scale incineration, stack and soot gas samples combined, n = 5	119
PCP-treated wood combustion	495	Incinerator	502	Polychlorinated		111,540 - 392,100 ng/g feed	Based on pilot-scale incineration,	119

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Paint and coating manufacture	28	Xylene solvent		dibenzofurans	1330207	20.2 kg/Mg xylene consumed	stack and smoke gas samples combined, n = 5	67
Paint stripper formulation	2851	Entire process	301999	Xylene	75092	0.05 Mg/Mg of MC consumed	Uncontrolled, based on aggregate estimates of emissions and consumption at formulation facilities	157
Paint stripping		Dip tanks at durable goods manufacturers	402	Methylene chloride	75092	0.6 kg/kg MC contained in stripper used	Uncontrolled, based on material balances for 3 auto manufac. facilities & 1 aircraft maint. facility	157
Paint stripping		Dip tanks at durable goods manufacturers	402	Methylene chloride	75092	0.2 kg/kg MC contained in stripper used	Controlled by water seal and 15 sec. drain time, assumes 60% emission reduction	157
Paint stripping		Floor stripping	402	Methylene chloride	75092	1 kg/kg MC contained in stripper used	Uncontrolled, based on questionnaire responses for auto plants and engineering judgement	157
Paint stripping	3711	Spray booth maintenance at automobile assembly plants	40201605	Methylene chloride	75092	0.8 kg/kg MC contained in stripper used	Uncontrolled, based on questionnaire responses and engineering judgement	157
Paint stripping	4500	Aircraft (military and commercial)	490	Methylene chloride	75092	0.8 kg/kg MC contained in stripper used	Uncontrolled, based on material balances for 2 commercial aircraft maintenance facilities	157
Paint stripping	7641	Furniture stripping (household and commercial)	490	Methylene chloride	75092	1 kg/kg MC contained in stripper used	Uncontrolled, based on engineering judgement	157
Paint stripping	9711	Dip tanks at military installations	490	Methylene chloride	75092	0.4 kg/kg MC contained in stripper used	Uncontrolled, based on material balances for 3 military installations using dip tanks	157
Paper coating	264	Coating line	40201301	Acetone	67641	2.05 x 10-4 lb/ft paper coated	Based on one sampling program, sampled at discharge of afterburner	11
Paper coating	264	Coating line	40201301	Methyl ethyl ketone	78033	8.01 x 10-5 lb/ft paper coated	Based on one sampling program, sampled at discharge of afterburner	11
Paper coating	264	Coating line	40201301	Naphthalene	91203	9.6 x 10-7 lb/ft paper coated	Based on one sampling program, sampled at discharge of afterburner	11
paved roads		Entire source		Lead	7439921	0.065 g/vehicle mile	Based on field measurements for	122

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Paved roads		Dust reentrainment		Lead	7439921	0.03 g/vehicle mile	1975-1976 Calculated based on data available for 1975-1976	122
Paved roads		Vehicle exhaust		Lead	7439921	0.002 g/vehicle mile	Projected emission factor for 1990, calculated based on composite vehicle operation	122
Pentaerythritol production	2869	Process	301250	Formaldehyde	50000	1.3-2.7 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or the types of control involved	106
Pentaerythritol production	2869	Formaldehyde storage	301250	Formaldehyde	50000	0.002-0.33 kg/Mg of 37% formal. used	No information was available on the basis of these estimates or the types of control involved	106
Perchloroethylene and carbon tetrachloride production	2869	Hydrocarbon chlorinolysis process, hex waste handling	301125	Vinylidene chloride	75354	0.013 kg/Mg PCE & carbon tet. produced	Uncontrolled, based on hypothetical plant producing 50,000 Mg/yr PCE and 30,000 Mg/yr CI	70
Perchloroethylene and carbon tetrachloride production	2869	Hydrocarbon chlorinolysis process, hex waste handling	301125	Vinylidene chloride	75354	0.00013 kg/Mg PCE & carbon tet. produced	Vapor-bal. syst./carb. adsor. (99% eff), hypothetical plant prod. 50,000 Mg/yr PCE & 30,000 Mg/yr CI	70
Perchloroethylene and trichloroethylene production	2869	Oxychlorination process, drying column vent	301125	Perchloroethylene	127184	0.0075 g/kg of PCE and TCE produced	Factor includes TCE emissions, uncontrolled, based on data from one producer	70
Perchloroethylene and trichloroethylene production	2869	Oxychlorination process, distillation vent	301125	Perchloroethylene	127184	0.075 g/kg of PCE and TCE produced	Uncontrolled, based on data from one producer	70
Perchloroethylene and trichloroethylene production	2869	Oxychlorination process, distillation vent	301125	Dichloroethylene, cis-	156592	0.063 g/kg of PCE and TCE produced	Uncontrolled, based on data from one producer	1
Perchloroethylene and trichloroethylene production	2869	Oxychlorination process, drying column vent	301125	Dichloroethylene, trans-	156605	0.65 g/kg of PCE and TCE produced	Uncontrolled, based on data from one producer	1
Perchloroethylene and trichloroethylene production	2869	Oxychlorination process, distillation vent	301125	Dichloroethylene, trans-	156605	0.225 g/kg of PCE and TCE produced	Uncontrolled, based on data from one producer	1
Perchloroethylene and trichloroethylene production	2869	Oxychlorination process, drying column vent	301125	Vinyl chloride	75014	0.52 g/kg of PCE and TCE produced	Uncontrolled, based on data from one producer	70
Perchloroethylene and trichloroethylene production	2869	Reactor vent (oxychlorination process)	301125	Vinylidene chloride	75354	3.8 kg/Mg PCE and TCE produced	Uncontrolled	165

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Perchloroethylene and trichloroethylene production	2869	Reactor vent (oxygenation process)	301125	Vinylidene chloride	75354	<0.076 kg/Mg PCE and TCE produced	Thermal oxidation	165
Perchloroethylene and trichloroethylene production	2869	Drying column vent (oxygenation process)	301125	Vinylidene chloride	75354	0.4 kg/Mg PCE and TCE	Uncontrolled	165
Perchloroethylene and trichloroethylene production	2869	Drying column vent (oxygenation process)	301125	Vinylidene chloride	75354	<0.008 kg/Mg PCE and TCE	Thermal oxidation	165
Perchloroethylene and trichloroethylene production	2869	Oxygenation process, drying column vent	301125	Trichloroethylene	79016	0.0075 g/kg PCE & trichloro produced	Emis. factor may include PCE emis., control status unspecified, based on data for one plant	104
Perchloroethylene and trichloroethylene production	2869	Oxygenation process, distillation vent	301125	Trichloroethylene	79016	0.075 g/kg PCE & trichloro produced	Uncontrolled, based on data from one producer	104
Perchloroethylene and trichloroethylene production	2869	Wastewater stripper	30112520	Chloroform	67663	0.12 kg/Mg perchloroethylene produced	Controlled with 2 condensers, may not apply to all PCE/TCE plants, see reference	164
Perchloroethylene and trichloroethylene production	2869	Distillation vents (oxygenation process)	30112521	Vinylidene chloride	75354	0.098 kg/Mg PCE and TCE	Uncontrolled	165
Perchloroethylene and trichloroethylene production	2869	Distillation vents (oxygenation process)	30112521	Vinylidene chloride	75354	0.020 kg/Mg PCE and TCE	Aqueous scrubber	165
Perchloroethylene and trichloroethylene production	2869	Distillation vents (chlorination process)	30112531	Vinylidene chloride	75354	0.100 kg/Mg PCE and TCE produced	Uncontrolled	165
Perchloroethylene and trichloroethylene production	2869	Distillation vents (chlorination process)	30112531	Vinylidene chloride	75354	0.021 kg/Mg PCE and TCE produced	Refrigerated condenser (80%)	165
Perchloroethylene and trichloroethylene production	2869	Neutralization and drying vent (chlorination process)	30112532	Vinylidene chloride	75354	2.5 kg/Mg PCE and TCE produced	Uncontrolled, based on published data from indiv. plants and general processing techniques	165
Perchloroethylene and trichloroethylene production	2869	Neutralization and drying vent (chlorination process)	30112532	Vinylidene chloride	75354	0.50 kg/Mg PCE and TCE produced	Refrigerated condenser (80%)	165
Perchloroethylene production	2869	Chlorination or oxygenation process	30112520	Ethylene dichloride	107062	5 kg/Mg PCE produced	Controlled, aggregate estimate based on national emissions and production estimates	51
Perchloroethylene production	2869	Hydrocarbon chlorination process, hex waste handling	30112520	Ethylene dichloride	107062	0.026 kg/Mg PCE and CCl4 produced	Uncontrolled, based on hypothetical plant producing 50,000 Mg/yr PCE & 30,000 Mg/yr carbon tet.	51

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Perchloroethylene production	2869	Hydrocarbon chlorinolysis process, hex waste handling	30112520	Ethylene dichloride	107062	0.00026 kg/Mg PCE and CCl ₄ produced	Contr. = vapor bal. syst. & carbon adsor./hypothetical plant prod. 50,000 Mg/yr PCE & 30,000 Mg/yr CCl ₄	51
Perchloroethylene production	2869	Chlorination of ethylene dichloride proc/neutralization & drying area vent	30112520	Ethylene dichloride	107062	3.1 g/kg of PCE produced	Uncontrolled, based on data from one producer	70
Perchloroethylene production	2869	Chlorination of ethylene dichloride proc/neutralization & drying area vent	30112520	Perchloroethylene	127184	0.50 g/kg of PCE produced	Uncontrolled, based on data from one producer	70
Perchloroethylene production	2869	Chlorination of ethylene dichloride proc/neutralization & drying area vent	30112520	Dichloroethylene, cis-	156592	0.29 g/kg of PCE produced	Uncontrolled, based on data from one producer	1
Perchloroethylene production	2869	Chlorination of ethylene dichloride proc/neutralization and drying area vent	30112520	Dichloroethylene, trans-	156605	1.1 g/kg of PCE produced	Uncontrolled, based on data from one producer	1
Perchloroethylene production	2869	Chlorination of ethylene dichloride proc/neutralization & drying area vent	30112520	Carbon tetrachloride	56235	0.064 g/kg of perchloroethylene produced	Uncontrolled, based on data from one producer	1
Perchloroethylene production	2869	Chlorination of ethylene dichloride proc/distillation vent	30112521	Perchloroethylene	127184	0.099 g/kg of PCE produced	Uncontrolled, based on data from one producer	70
Perchloroethylene production	2869	Chlorination of ethylene dichloride/distillation vent	30112521	Dichloroethylene, cis-	156592	0.043 g/kg of PCE produced	Uncontrolled, based on data from one producer	1
Perchloroethylene production	2869	Chlorination of ethylene dichloride proc/distillation vent	30112521	Dichloroethylene, trans-	156605	0.075 g/kg of PCE produced	Uncontrolled, based on data from one producer	1
Perchloroethylene production	2869	Chlorination of ethylene dichloride proc/distillation vent	30112521	Carbon tetrachloride	56235	0.026 g/kg of perchloroethylene produced	Uncontrolled, based on data from one producer	1
Perchloroethylene production - EDC chlorination	2869	Drying column	30112520	Carbon tetrachloride	56235	0.063 kg/Mg perchloroethylene produced	Uncontrolled	163
Perchloroethylene production	2869	Drying column	30112520	Carbon tetrachloride	56235	0.0050 kg/Mg	Condenser	163

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
- EDC chlorination								
Perchloroethylene production - EDC chlorination	2869	Distillation column	30112521	Carbon tetrachloride	56235	perchloroethylene produced 0.027 kg/Mg perchloroethylene produced	Uncontrolled	163
Perchloroethylene production - EDC chlorination	2869	Neutralization	30112522	Carbon tetrachloride	56235	0.016 kg/Mg perchloroethylene produced	Uncontrolled	163
Perchloroethylene production - EDC chlorination	2869	Process fugitives	30112524	Carbon tetrachloride	56235	2.8 kg/hr	Uncontrolled	163
Perchloroethylene production - EDC chlorination	2869	Storage - light ends	30112524	Carbon tetrachloride	56235	0.11 kg/Mg perchloroethylene produced	Uncontrolled	163
Perchloroethylene production - EDC chlorination	2869	Storage - light ends	30112524	Carbon tetrachloride	56235	0.0012 kg/Mg perchloroethylene produced	Condenser	163
Perchloroethylene production - EDC chlorination	2869	Light ends/heavy ends mix tank	30112524	Carbon tetrachloride	56235	0.11 kg/Mg perchloroethylene produced	Uncontrolled	163
Perchloroethylene production - EDC chlorination	2869	Light ends/heavy ends mix tank	30112524	Carbon tetrachloride	56235	0.022 kg/Mg perchloroethylene produced	Condenser	163
Perchloroethylene production by chlorination process	2869	Neutralization and drying area vent	30112520	Trichloroethylene	79016	0.11 g/kg of PCE produced	Control status unspecified, based on data from one plant	104
Perchloroethylene production by chlorination process	2869	Distillation vent	30112521	Trichloroethylene	79016	0.056 g/kg of PCE produced	Control status unspecified, based on data from one plant	104
Pesticide manufacturing	2879	All sources		Carbon tetrachloride	56235	0.28 kg/Mg CCl4 used	CCl4 not used in all pesticide production	134
Pesticide manufacturing	2879	Process	301033	Hexachlorocyclopentadiene	77474	0.000325 lb/lb used	Based on engineering judgement	13
Pesticide manufacturing	2879	Storage	301033	Hexachlorocyclopentadiene	77474	0.00005 lb/lb used	Based on engineering judgement	13
Pesticide manufacturing	2879	Fugitive	301033	Hexachlorocyclopentadiene	77474	0.000125 lb/lb used	Based on engineering judgement	13
Petroleum refinery	2911	Fugitives	306	Ethyl benzene	100414	0.577 lb/hr	Based on weighted emission stream content	92
Petroleum refinery	2911	Reciprocating compressor engines	306	Ammonia	7664417	3.2 kg/1000 m3 gas burned		97
Petroleum refinery	2911	Fugitives	306	Naphthalene	91203	0.33 lb/hr	Based on weighted emission stream content	92
Petroleum refinery	2911	Fugitives	306	Biphenyl	92524	0.006 lb/hr	Based on weighted emission stream	92

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Petroleum refinery	2911	FCC regenerator	306002	Formaldehyde	50000	2.2 kg/1000 bbl fresh feed	content Controlled with CO boiler/ESP, derived from emission test data for total aldehydes	106
Petroleum refinery	2911	Fluidized bed catalytic cracker unit regenerator	30600201	Benzo(a)pyrene	50328	0.218 kg/1000 barrels of feed	Uncontrolled	148
Petroleum refinery	2911	Fluidized bed catalytic cracker unit regenerator	30600201	Benzo(a)pyrene	50328	1.41 x 10E-5 kg/1000 barrels of feed	Controlled by CO boiler	148
Petroleum refinery	2911	Fluidized catalytic cracking unit	30600201	Ammonia	7664417	0.155 kg/m3 fresh feed	Uncontrolled	97
Petroleum refinery	2911	Fluidized catalytic cracking unit	30600201	Ammonia	7664417	Negligible	Controlled by electrostatic precipitator and CO boiler	97
Petroleum refinery	2911	Moving bed (TCC) regenerator	306003	Formaldehyde	50000	1.0 kg/1000 bbl fresh feed	Controlled with CO boiler/ESP, derived from emission test data for total aldehydes	106
Petroleum refinery	2911	Entire process	3060080	Xylene	1330207	3 kg/1000 barrels	With catalytic reforming, 50% storage and 50% fugitive + process emissions assumed	67
Petroleum refinery	2911	Entire process	3060080	Xylene	1330207	1.5 kg/1000 barrels	Without catalytic reforming, 50% storage and 50% fugitive + process emissions assumed	67
Petroleum refinery	2911	Fluid coker burner	30601201	Formaldehyde	50000	0.54 kg/1000 bbl fresh feed	Controlled with CO boiler/ESP, derived from emission test data for total aldehydes	106
Petroleum refinery sludge	4953	Land treatment	50300820	Acrylonitrile	107131	0.084 kg/hectare-hr	Based on two different sampling methods at the same site	12
Petroleum refinery sludge	4953	Land treatment	50300820	Toluene	108883	1.4 kg/hectare-hr	Emissions measured within 1 hr. of sludge application to landfill	12
Petroleum refinery sludge	4953	Land treatment	50300820	Xylene	1330207	1.11 kg/hectare-hr	Emissions measured within 1 hr. of sludge application to landfill	12
Petroleum refinery with cracking/reforming	2911	Fugitives	306	Toluene	108883	21 lb/ton total HC	Assumes fugitives are 1.05% toluene	92
Petroleum refinery with cracking/reforming	2911	Fugitives	306	Xylene	1330207	31.0 lb/ton total HC	Assumes fugitives are 1.5% xylene	92

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Petroleum refinery with cracking/reforming	2911	Fugitives	306	Benzene	71432	7.2 lb/ton total HC	Assumes fugitives are 0.36% benzene	92
Petroleum refinery without cracking/reforming	2911	Fugitives	306	Toluene	108883	2.1 lb/ton THC	Assumes toluene is 0.105% of THC	92
Petroleum refinery without cracking/reforming	2911	Fugitives	306	Xylene	1330207	3.1 lb/ton THC	Assumes xylene is 0.155% of THC	92
Petroleum refinery without cracking/reforming	2911	Fugitives	306	Benzene	71432	0.72 lb/ton total HC	Assumes benzene is 0.036% of total HC	92
Pharmaceutical manufacture	2834	Plant-wide	301060	Carbon tetrachloride	56235	110 kg/Mg CCl ₄ used	Industry-wide mass balance	163
Pharmaceutical manufacture	2834	Plantwide emissions	301060	Chloroform	67663	160 kg/Mg chloroform used	Controlled	164
Pharmaceutical manufacture	2834	Process emissions	301060	Dichlorobenzene, 1,2-	95501	140 g/Mg 1,2-dichlorobenzene used	Mass balance (industry wide)	48
Phenol production	2865	General	30120201	Phenol	108952	1.78 x 10E-3 lb/lb produced	Engineering estimates	13
Phenol production	2865	Fugitive	30120280	Phenol	108952	4.1 x 10E-4 lb/lb produced	Engineering estimates	13
Phenol production	2865	Storage	407084	Phenol	108952	3.0 x 10E-5 lb/lb produced	Engineering estimates	13
Phenol production using cumene process	2865	"Spent air" from the oxidizer	30120202	Benzene	71432	2 x 10-6 kg/kg phenol	At one source, measured at post oxidizer condenser vent	132
Phenol-formaldehyde resin production	2821	Process	30101805	Formaldehyde	50000	0.15-1.5 kg/Mg of 37% formaldehyde used	Uncontrolled, basis unclear	106
Phenol-formaldehyde resin production	2821	Formaldehyde storage	30101805	Formaldehyde	50000	0.03-0.2 kg/Mg of 37% formaldehyde used	Uncontrolled, basis unclear	106
Phenolic resin production	2821	Storage	301018	Phenol	108952	2.0 x 10E-5 lb/lb used	Engineering judgment	13
Phenolic resin production	2821	Fugitive	301018	Phenol	108952	1.3 x 10E-4 lb/lb used	Engineering judgment	13
Phenolic resin production	2821	General	30101805	Phenol	108952	3.5 x 10E-4 lb/lb used	Engineering judgment	13
Phosgene production	2869	Process vent		Phosgene	75445	1.5 lb/10E6 lb produced	Hypothetical site, incinerator and scrubber control, includes storage tanks	121
Phosgene production	2869	Fugitive emissions		Phosgene	75445	33 lb/10E6 lb produced	Hypothetical site, upper end of range, lower value is 0.6 lb/10E6 lb	121

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Phosgene production	2869	Process upsets		Phosgene	75445	0.0005 lb/ton phosgene produced		121
Phosgene production by chlorination of CO	2869	Absorption		Toluene	108883	1.25 g/kg produced	Control uncertain, based on tests and mass balance	95
Phosgene/diisocyanate production	2869	Fugitive emissions	301	Phosgene	75445	0.058 lb/hr operation	Based on measurements at a chemical plant	14
Phosphate fertilizer manufacturing - wet proc.	2874	Granular triple superphosphate process	301029	Radionuclides		6.0 nCi/metric ton fertilizer produced	Rough est. U-238, U-234, Th-230 from GTSF controlled w/ Venturi scrubber	37
Phosphate fertilizer manufacturing - wet proc.	2874	Granular triple superphosphate process	301029	Radionuclides		2.0 nCi Ra-226/metric ton fertil. prod.	Rough est. controlled with Venturi scrubber, emitting 100 g PM/metric ton fertil. prod.	37
Phosphate fertilizer manufacturing - wet proc.	2874	Granular triple superphosphate process	301029	Radionuclides		3.0 nCi Pb-210/metric ton fertil. prod.	Rough est. controlled with Venturi scrubber, emitting 100 g PM/metric ton fertil. prod.	37
Phosphate fertilizer manufacturing - wet proc.	2874	Granular triple superphosphate process	301029	Radionuclides		3.0 nCi Po-210/metric ton fertil. prod.	Rough est. controlled with Venturi scrubber, emitting 100 g PM/metric ton fertil. prod.	37
Phosphate fertilizer manufacturing - wet proc.	2874	Diammonium phosphate process	301030	Radionuclides		9.8 nCi/metric ton fertilizer produced	Rough est. U-238, U-234, Th-230 from DAP controlled with Venturi scrubber	37
Phosphate fertilizer manufacturing - wet proc.	2874	Diammonium phosphate process	301030	Radionuclides		0.82 nCi Ra-226/metr. ton fertil. prod.	Rough est. controlled w/ Venturi scrubber, emits 164 g PM/metr. ton fertilizer prod.	37
Phosphate fertilizer manufacturing - wet proc.	2874	Diammonium phosphate process	301030	Radionuclides		4.9 nCi Pb-210/metr. ton fertil. prod.	Rough est. controlled w/ Venturi scrubber, emits 164 g PM/metr. ton fertilizer prod.	37
Phosphate fertilizer manufacturing - wet proc.	2874	Diammonium phosphate process	301030	Radionuclides		4.9 nCi Po-210/metr. ton fertil. prod.	Rough est. controlled w/ Venturi scrubber, emits 164 g PM/metr. ton fertilizer prod.	37
Phosphate rock processing	1475	Dryer	30501901	Radionuclides		5.2 nCi/metr. ton phosph. rock processed	Rough est. for dryer w/ low energy scrubber releases. 130 g PM/ton rock processed	37
Phosphate rock processing	1475	Grinder	30501902	Radionuclides		1.0 nCi/metr. ton phosph. rock processed	Rough est. for dryer w/ low energy scrubber releases. 130 g PM/ton rock processed	37

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Phosphoric acid production - wet process	2874	Reactor	30101601	Fluorine	7782414	56.4 lb/ton	Uncontrolled, based on mass balance	97
Phosphoric acid production - wet process	2874	Gypsum settling ponds	30101602	Fluorine	7782414	1.12 lb/ton acid	0.7 acres of pond needed to produce 1 ton acid	97
Phosphoric acid production - wet process	2874	Condenser	30101603	Fluorine	7782414	61.2 lb/ton acid	Uncontrolled, based on mass balance	97
Photographic film processing	7364	Splicing glue		Methylene chloride	75092	1 kg/kg MC contained splicing glue appl.	Uncontrolled, based on engineering judgement	69
Phthalic anhydride production	2865	Storage		Xylene, o-	95476	2.0 x 10E-5 lb/lb xylene used	Estimated	13
Phthalic anhydride production	2865	Phthalic anhydride condensers	301019	Formaldehyde	50000	2.1 kg/Mg PA produced	Uncontrolled, no info. was available on the basis of these estimates or types of controls involved	106
Phthalic anhydride production	2865	Phthalic anhydride condensers	301019	Formaldehyde	50000	0.074 kg/Mg PA produced	Controlled by direct incin., no info. was available on basis of these est. or types of control invol	106
Phthalic anhydride production	2865	Fugitive	301019	Xylene, o-	95476	4.0 x 10E-5 lb/lb xylene used	Estimated	13
Phthalic anhydride production	2865	Process - general	30101901	Xylene, o-	95476	1.4 x 10E-4 lb/lb xylene used	Estimated	13
Phthalic anhydride production - naphthalene process	2865	Fugitives	301019	Diphenyl oxide	101848	0.016 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Phthalic anhydride production - naphthalene process	2865	Main process incinerator	301019	Maleic anhydride	108316	7.0 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Phthalic anhydride production - naphthalene process	2865	Main process incinerator	301019	Maleic anhydride	108316	0.24 g/kg PA produced	Controlled, test data and engineering judgement	120
Phthalic anhydride production - naphthalene process	2865	Secondary incinerator	301019	Maleic anhydride	108316	4.9 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Phthalic anhydride production - naphthalene process	2865	Secondary incinerator	301019	Maleic anhydride	108316	0.05 g/kg PA produced	Controlled (not specified), test data and engineering judgement	120
Phthalic anhydride production - naphthalene process	2865	Main process incinerator	301019	Naphthoquinone	130154	0.69 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Phthalic anhydride production	2865	Main process incinerator	301019	Naphthoquinone	130154	0.02 g/kg PA produced	Controlled, test data and	120

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
- naphthalene process Phthalic anhydride production - naphthalene process	2865	Secondary incinerator	301019	Naphthoquinone	130154	6.6 g/kg PA produced	engineering judgement Uncontrolled, test data and engineering judgement	120
Phthalic anhydride production - naphthalene process	2865	Secondary incinerator	301019	Naphthoquinone	130154	0.07 g/kg PA produced	Controlled (not specified), test data and engineering judgement	120
Phthalic anhydride production - naphthalene process	2865	Catalyst storage	301019	Vanadium oxide	1314621	0.41 g catalyst/kg PA produced	Uncontrolled, emissions are the catalyst, not pure vanadium oxide	120
Phthalic anhydride production - naphthalene process	2865	Catalyst storage	301019	Vanadium oxide	1314621	0.01 g catalyst/kg PA produced	Controlled, emissions are the catalyst, not pure vanadium oxide	120
Phthalic anhydride production - naphthalene process	2865	Main process incinerator	301019	Formaldehyde	50000	2.1 g/kg PA produced	Uncontrolled, all aldehyde assumed to be formaldehyde	120
Phthalic anhydride production - naphthalene process	2865	Main process incinerator	301019	Formaldehyde	50000	0.074 g/kg PA produced	Controlled, test data and engineering judgement	120
Phthalic anhydride production - naphthalene process	2865	Main process incinerator	301019	Benzoic acid	65850	1.56 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Phthalic anhydride production - naphthalene process	2865	Main process incinerator	301019	Benzoic acid	65850	0.05 g/kg PA produced	Controlled, test data and engineering judgement	120
Phthalic anhydride production - naphthalene process	2865	Main process incinerator	301019	Phthalic anhydride	85449	20.4 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Phthalic anhydride production - naphthalene process	2865	Main process incinerator	301019	Phthalic anhydride	85449	0.71 g/kg PA produced	Controlled, test data and engineering judgement	120
Phthalic anhydride production - naphthalene process	2865	Secondary incinerator	301019	Phthalic anhydride	85449	9.8 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Phthalic anhydride production - naphthalene process	2865	Secondary incinerator	301019	Phthalic anhydride	85449	0.10 g/kg PA produced	Controlled (not specified), test data and engineering judgement	120
Phthalic anhydride production - naphthalene process	2865	Storage tanks	301019	Phthalic anhydride	85449	0.37 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Phthalic anhydride production - naphthalene process	2865	Storage tanks	301019	Phthalic anhydride	85449	0.004 g/kg PA produced	Controlled, test data and engineering judgement	120
Phthalic anhydride production - naphthalene process	2865	Flaker/bagger	301019	Phthalic anhydride	85449	0.10 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
Phthalic anhydride production	2865	Flaker/bagger	301019	Phthalic anhydride	85449	0.001 g/kg PA produced	Controlled, test data and engineering judgement	120

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
- naphthalene process							engineering judgement	
Phthalic anhydride production	2865	Transport loading	301019	Phthalic anhydride	85449	0.45 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
- naphthalene process								
Phthalic anhydride production	2865	Transport loading	301019	Phthalic anhydride	85449	0.005 g/kg PA produced	Controlled, test data and engineering judgement	120
- naphthalene process								
Phthalic anhydride production	2865	Storage tanks	301019	Naphthalene	91203	0.60 g/kg PA produced	Uncontrolled, test data and engineering judgement	120
- naphthalene process								
Phthalic anhydride production	2865	Storage tanks	301019	Naphthalene	91203	0.006 g/kg PA produced	Controlled, test data and engineering judgement	120
- naphthalene process								
Phthalic anhydride production	2865	Fugitives	301019	Diphenyl oxide	101848	0.016 g/kg PA produced	Uncontrolled, heat transfer fluid	120
- xylene process								
Phthalic anhydride production	2865	Main process incinerator	301019	Maleic anhydride	108316	1.82 g/kg PA produced	Controlled, based on test data	120
- xylene process								
Phthalic anhydride production	2865	Secondary incinerator	301019	Maleic anhydride	108316	0.038 g/kg PA produced	Controlled, test data and engineering judgement	120
- xylene process								
Phthalic anhydride production	2865	Main process incinerator	301019	Maleic anhydride	108316	52.0 g/kg PA produced	Uncontrolled, based on test data and engineering judgement	120
- xylene process								
Phthalic anhydride production	2865	Secondary incinerator	301019	Maleic anhydride	108316	3.75 g/kg PA produced	Uncontrolled, based on test data and engineering judgement	120
- xylene process								
Phthalic anhydride production	2865	Storage tanks	301019	Xylene	1330207	0.002 g/kg PA produced	Controlled, test data and engineering judgement	120
- xylene process								
Phthalic anhydride production	2865	Storage tanks	301019	Xylene	1330207	0.20 g/kg PA produced	Uncontrolled, based on test data and engineering judgement	120
- xylene process								
Phthalic anhydride production	2865	Main process incinerator	301019	Formaldehyde	50000	0.074 g/kg PA produced	Controlled, all aldehydes assumed to be formaldehyde	120
- xylene process								
Phthalic anhydride production	2865	Main process incinerator	301019	Formaldehyde	50000	2.1 g/kg PA produced	Uncontrolled, all aldehydes reported as formaldehyde	120
- xylene process								
Phthalic anhydride production	2865	Main process incinerator	301019	Benzoic acid	65850	0.109 g/kg PA produced	Controlled, based on test data	120
- xylene process								
Phthalic anhydride production	2865	Secondary incinerator	301019	Benzoic acid	65850	0.0125 g/kg PA produced	Controlled, test data and engineering judgement	120
- xylene process								
Phthalic anhydride production	2865	Main process incinerator	301019	Benzoic acid	65850	3.12 g/kg PA produced	Uncontrolled, based on test data	120

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
- xylene process Phthalic anhydride production - xylene process	2865	Secondary incinerator	301019	Benzoic acid	65850	1.25 g/kg PA produced	and engineering judgement Uncontrolled, based on test data and engineering judgement	120
Phthalic anhydride production - xylene process	2865	Flaker/bagger	301019	Phthalic anhydride	85449	0.10 g/kg PA produced	Uncontrolled, based on test data and engineering judgement	120
Phthalic anhydride production - xylene process	2865	Transport loading	301019	Phthalic anhydride	85449	0.45 g/kg PA produced	Uncontrolled, based on test data and engineering judgement	120
Phthalic anhydride production - xylene process	2865	Main process incinerator	301019	Phthalic anhydride	85449	0.545 g/kg PA produced	Controlled, based on test data	120
Phthalic anhydride production - xylene process	2865	Secondary incinerator	301019	Phthalic anhydride	85449	0.106 g/kg PA produced	Controlled, test data and engineering judgement	120
Phthalic anhydride production - xylene process	2865	Storage tanks	301019	Phthalic anhydride	85449	0.003 g/kg PA produced	Controlled, test data and engineering judgement	120
Phthalic anhydride production - xylene process	2865	Flaker/bagger	301019	Phthalic anhydride	85449	0.001 g/kg PA produced	Controlled, test data and engineering judgement	120
Phthalic anhydride production - xylene process	2865	Transport loading	301019	Phthalic anhydride	85449	0.005 g/kg PA produced	Controlled, test data and engineering judgement	120
Phthalic anhydride production - xylene process	2865	Main process incinerator	301019	Phthalic anhydride	85449	15.6 g/kg PA produced	Uncontrolled, based on test data and engineering judgement	120
Phthalic anhydride production - xylene process	2865	Secondary incinerator	301019	Phthalic anhydride	85449	10.6 g/kg PA produced	Uncontrolled, based on test data and engineering judgement	120
Phthalic anhydride production - xylene process	2865	Storage tanks	301019	Phthalic anhydride	85449	0.29 g/kg PA produced	Uncontrolled, based on test data and engineering judgement	120
Plastic stabilizers manufacture	2869	Total emissions		Cadmium	7440039	6 lb/ton Cd charged	Engineering estimate, controlled with baghouse	38
Polycetal resin production	2821	Process	301018	Formaldehyde	50000	0.09-0.37 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or the types of control involved	106
Polycetal resin production	2821	Formaldehyde storage	301018	Formaldehyde	50000	0.02-0.03 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or the types of control involved	106
Polybutadiene production	2822	Process vents	301	Butadiene, 1,3-	106990	0.026 kg/Mg PBD produced	Controlled (flare), calculated from average of four plants	80

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Polybutadiene production	2822	Process vents	301	Butadiene, 1,3-	106990	0.5 kg/Mg PBD produced	emissions and capacities Uncontrolled, based on one plant's emissions and capacity	80
Polybutadiene production	2822	Equipment leak	301	Butadiene, 1,3-	106990	1.3 kg/Mg PBD produced	Uncontrolled, based on average of six plant's capacities and emissions	80
Polybutadiene production	2822	Wastewater emissions	301	Butadiene, 1,3-	106990	0.3 kg/Mg PBD produced	Uncontrolled, based on one plant's data	80
Polycarbonate production	2821	Process vents	30101899	Phosgene	75445	6.6 lb/10E6 lb phosgene produced	Hypothetical site, value for polycarb. alone, add to value for phos. to get total for phos.-polyc. plant	121
Polycarbonate production	2821	Fugitives	30101899	Phosgene	75445	5.8 lb/10E6 lb phosgene produced	Hypothetical site, upper end of range, lower value is 0.15 lb/10E6 lb phosgene produced	121
Polycarbonate production	2821	Process upset	30101899	Phosgene	75445	0.0006 lb/ton phosgene		121
Polyether polyol production	2869	Fugitive emissions/equipment leaks	301250	Propylene oxide	75569	2 Mg/yr	Based on VOC of 28 Mg/yr (8 pump seals in service) and 7.6 wt% PO in streams	24
Polyether polyol production	2869	Process vent	301250	Propylene oxide	75569	0.00013 lb/lb PO consumed		24
Polymerization of vinylidene chloride	2824	Reactor	301125	Vinylidene chloride	75354	3.5 kg/Mg polymer produced	Controlled	165
Polymerization of vinylidene chloride	2824	Monomer recovery	301125	Vinylidene chloride	75354	0.33 kg/Mg polymer produced	Controlled	165
Polymerization of vinylidene chloride	2824	Unloading/storage	301125	Vinylidene chloride	75354	2.1 kg/Mg polymer produced	Controlled	165
Polymerization of vinylidene chloride	2824	Process fugitive	301125	Vinylidene chloride	75354	2.8-11 kg/Mg polymer produced	Controlled	165
Polystyrene - batch process	2821	Monomer storage/feed dissolver	30101817	Styrene	100425	0.09 kg/Mg polystyrene	Control status unclear	96
Polystyrene - batch process	2821	Devolatilizer condenser	30101817	Styrene	100425	0.5 kg/Mg polystyrene	Control status unclear, range 0.25-0.75	96
Polystyrene - batch process	2821	Extruder quench	30101817	Styrene	100425	0.23 kg/Mg polystyrene	Control status unclear, range 0.15-0.3	96

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Polystyrene - batch process	2821	Reactor	30101818	Styrene	100425	0.735 kg/Mg polystyrene	Control status unclear, range 0.12-1.35	96
Polystyrene - continuous process	2821	Feed dissolver	30101817	Styrene	100425	0.008 kg/Mg polystyrene	Control status unclear	96
Polystyrene - continuous process	2821	Devolatilizer condenser	30101817	Styrene	100425	1.5 kg/Mg polystyrene	Control status unclear, range 0.05-2.96	96
Polystyrene - continuous process	2821	Styrene recovery unit	30101817	Styrene	100425	0.09 kg/Mg polystyrene	Control status unclear, range 0.05-0.13	96
Polystyrene - continuous process	2821	Extruder quench	30101817	Styrene	100425	0.15 kg/Mg polystyrene	Control status unclear, range 0.05-0.13	96
Polysulfide rubber production	2822	Entire process	30102601	Ethylene dichloride	107062	33.8 kg/Mg polysulfide rubber produced	Controlled, based on engineering judgement	51
Polyvinyl chloride production	2821	Suspension process, entire plant	301018	Butadiene, 1,3-	106990	21 x 10E-5 g/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138
Polyvinyl chloride production	2821	Suspension process, entire plant	301018	Chloroprene	107051	44 x 10E-5 g/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138
Polyvinyl chloride production	2821	Suspension process, entire plant	301018	Ethylene dichloride	107062	4 x 10E-5 g/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138
Polyvinyl chloride production	2821	Suspension process, entire plant	301018	Propylene	115071	7 x 10E-5 g propylene/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138
Polyvinyl chloride production	2821	Suspension process, entire plant	301018	Vinyl chloride	75014	35.5 g/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138
Polyvinyl chloride production	2821	Emulsion polymerization process	301018	Vinyl chloride	75014	60.1 g/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138
Polyvinyl chloride production	2821	Bulk polymerization process	301018	Vinyl chloride	75014	24.2 g/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138
Polyvinyl chloride production	2821	Solution polymerization process	301018	Vinyl chloride	75014	17.8 g/kg PVC	Based on a model plant, 1978 data, 68,000 Mg capacity, control status not certain	138

INDUSTRIAL PROCESS	S.C. CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Polyvinyl chloride production	2821	Reactor safety relief valve	301018	Vinyl chloride	75014	2.1 g/kg PVC	not certain	138
Polyvinyl chloride production	2821	Reactor entry purge	301018	Vinyl chloride	75014	2.8 g/kg PVC	Engineering judgement, control status not certain	138
Polyvinyl chloride production	2821	Stripper jets	301018	Vinyl chloride	75014	1.8 g/kg PVC	Engineering judgement	138
Polyvinyl chloride production	2821	Dryer discharge	301018	Vinyl chloride	75014	1.4 g/kg PVC	Engineering judgement	138
Polyvinyl chloride production	2821	Storage silos	301018	Vinyl chloride	75014	0.7 g/kg PVC	Engineering judgement	138
Polyvinyl chloride production	2821	Suspension process, entire plant	301018	Vinylidene chloride	75354	9 x 10E-5 g/kg PVC	Based on a model plant, 1978 data, 68,000 kg capacity, control status not certain	138
Polyvinyl chloride production	2821	Suspension process, entire plant	301018	Hydrogen chloride	7647010	21 x 10E-5 g/kg PVC	Based on a model plant, 1978 data, 68,000 kg capacity, control status not certain	138
Polyvinyl chloride production	2821	Primary control	30101801	Vinyl chloride	75014	4.8 kg/Mg PVC product	Rough estimate of uncontrolled emissions	27
Polyvinyl chloride production	2821	Primary control	30101801	Vinyl chloride	75014	0.01 kg/Mg PVC product	Rough estimate of actual emissions, control level at 23 existing plants unknown	27
Polyvinyl chloride production	2821	Relief valves	30101801	Vinyl chloride	75014	2.0 kg/Mg PVC product	Rough estimate for uncontrolled emissions	27
Polyvinyl chloride production	2821	Relief valves	30101801	Vinyl chloride	75014	0.0702 kg/Mg PVC product	For actual emissions, control level unknown	27
Polyvinyl chloride production	2821	Combined sources after resin stripping	30101801	Vinyl chloride	75014	12.5 kg/Mg PVC product	Rough estimate for uncontrolled emissions	27
Polyvinyl chloride production	2821	Combined sources after resin stripping	30101801	Vinyl chloride	75014	0.2 kg/Mg PVC product	Rough estimate for actual emissions, control level at 23 existing plants unknown	27
Polyvinyl chloride production	2821	Fugitives	30101801	Vinyl chloride	75014	15.3 kg/Mg PVC product	Rough estimate for uncontrolled emissions	27
Polyvinyl chloride production	2821	Fugitives	30101801	Vinyl chloride	75014	0.38 kg/Mg PVC product	Rough estimate for actual emissions, control level at 23 existing plants unknown	27

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Polyvinyl chloride production	2821	Reactor opening loss	30101801	Vinyl chloride	75014	4.6 kg/kg PVC product	Rough estimate for uncontrolled emissions	27
Polyvinyl chloride production	2821	Reactor opening loss	30101801	Vinyl chloride	75014	0.02 kg/kg PVC product	Rough estimate for actual emissions, control level at 23 existing plants unknown	27
Polyvinyl chloride production	2821	Monomer recovery condenser vent	30101808	Vinyl chloride	75014	5.0 g/kg PVC	Engineering judgement	138
Polyvinyl chloride production	2821	Slurry blend tank vents	30101808	Vinyl chloride	75014	4.4 g/kg PVC	Engineering judgement	138
Polyvinyl chloride production	2821	Centrifuge vents	30101808	Vinyl chloride	75014	1.3 g/kg PVC	Engineering judgement	138
Pressed/blown glass manufacturing	3211	Melting furnace	30501404	Selenium	7782492	0.002 g/kg glass	Uncontrolled, engineering judgement	23
Primary aluminum production	3334	Soderberg potline	303001	Phenol	100952	149 g/ton Al produced	Single test report, one plant, controlled, baghouse	91
Primary aluminum production	3334	Soderberg potline	303001	Phenol	100952	105 g/ton Al produced	Single test report, one plant, controlled, baghouse, material that escaped primary control system	91
Primary aluminum production	3334	Soderberg potline	303001	Naphthalene	91203	274 g/ton Al produced	Single test report, one plant, controlled, baghouse	91
Primary aluminum production	3334	Soderberg potline	303001	Naphthalene	91203	62 g/ton Al produced	Single test report, one plant, controlled, baghouse, material that escaped primary control system	91
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	6.7 lb/ton molten Al product	Gaseous fluoride, based on test data, cross flow packed bed scrubber	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	5.6 lb/ton molten Al product	Particulate fluoride, based on test data, cross flow packed bed scrubber	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	0.4 lb/ton molten Al product	Gaseous fluoride, based on test data, dry plus secondary scrubber	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	0.3 lb/ton molten Al product	Particulate fluoride, based on test data, dry plus secondary scrubber	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	1.4 lb/ton molten Al product	Gaseous fluoride, based on test data, dry ESP and spray tower	97

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	3.4 lb/ton molten Al product	Particulate fluoride, based on test data, dry ESP and spray tower	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	1.4 lb/ton molten Al product	Gaseous fluoride, based on test data, spray tower	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	3.8 lb/ton molten Al product	Particulate fluoride, based on test data, spray tower	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	0.5 lb/ton molten Al product	Gaseous fluoride, based on test data, floating bed scrubber	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	3.8 lb/ton molten Al product	Particulate fluoride, based on test data, floating bed scrubber	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	3.4 lb/ton molten Al product	Gaseous fluoride, based on test data, coated bag filter dry scrubber	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	0.4 lb/ton molten Al product	Particulate fluoride, based on test data, coated bag filter dry scrubber	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	24.0 lb/ton molten Al product	Uncontrolled, gaseous fluoride, based on test data	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	20.0 lb/ton molten Al product	Uncontrolled, particulate fluoride, based on test data	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	22.8 lb/ton molten Al product	Gaseous fluoride, based on test data, emissions to collector	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	19.0 lb/ton molten Al product	Particulate fluoride, based on test data, emissions to collector	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	22.8 lb/ton molten Al product	Gaseous fluoride, based on test data, multiple cyclone	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	4.2 lb/ton molten Al product	Particulate fluoride, based on test data, multiple cyclone	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	0.2 lb/ton molten Al product	Gaseous fluoride, based on test data, dry alumina scrubber	97
Primary aluminum production	3334	Prebake cell	30300101	Fluoride	16984488	0.4 lb/ton molten Al product	Particulate fluoride, based on test data, dry alumina scrubber	97

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Primary aluminum production	3334	Horizontal Soderberg stud cell	30300102	Fluoride	16984488	22 lb/ton molten Al product	Uncontrolled, gaseous fluoride, based on test data	97
Primary aluminum production	3334	Horizontal Soderberg stud cell	30300102	Fluoride	16984488	12 lb/ton molten Al product	Uncontrolled, particulate fluoride, based on test data	97
Primary aluminum production	3334	Horizontal Soderberg stud cell	30300102	Fluoride	16984488	19.8 lb/ton molten Al product	Gaseous fluoride, emissions to collector, based on test data	97
Primary aluminum production	3334	Horizontal Soderberg stud cell	30300102	Fluoride	16984488	10.8 lb/ton molten Al product	Particulate fluoride, emissions to collector, based on test data	97
Primary aluminum production	3334	Horizontal Soderberg stud cell	30300102	Fluoride	16984488	7.5 lb/ton molten Al product	Gaseous fluoride, spray tower, based on test data	97
Primary aluminum production	3334	Horizontal Soderberg stud cell	30300102	Fluoride	16984488	2.7 lb/ton molten Al product	Particulate fluoride, spray tower, based on test data	97
Primary aluminum production	3334	Horizontal Soderberg stud cell	30300102	Fluoride	16984488	0.4 lb/ton molten Al product	Gaseous fluoride, floating bed scrubber, based on test data	97
Primary aluminum production	3334	Horizontal Soderberg stud cell	30300102	Fluoride	16984488	2.4 lb/ton molten Al product	Particulate, floating bed scrubber, based on test data	97
Primary aluminum production	3334	Horizontal Soderberg stud cell	30300102	Fluoride	16984488	0.2 lb/ton molten Al product	Gaseous, scrubber plus ESP, based on test data	97
Primary aluminum production	3334	Horizontal Soderberg stud cell	30300102	Fluoride	16984488	0.2 lb/ton molten Al product	Particulate, scrubber plus ESP, based on test data	97
Primary aluminum production	3334	Horizontal Soderberg stud cell	30300102	Fluoride	16984488	1.0 lb/ton molten Al product	Gaseous, wet ESP, based on test data	97
Primary aluminum production	3334	Horizontal Soderberg stud cell	30300102	Fluoride	16984488	0.2 lb/ton molten Al product	Particulate, wet ESP, based on test data	97
Primary aluminum production	3334	Horizontal Soderberg stud cell	30300102	Fluoride	16984488	0.4 lb/ton molten Al product	Gaseous, dry alumina scrubber, based on test data	97
Primary aluminum production	3334	Horizontal Soderberg stud cell	30300102	Fluoride	16984488	0.2 lb/ton molten Al product	Particulate, dry alumina scrubber, based on test data	97
Primary aluminum production	3334	Vertical Soderberg stud cell	30300103	Fluoride	16984488	33 lb/ton molten Al product	Uncontrolled, gaseous fluoride, based on test data	97
Primary aluminum production	3334	Vertical Soderberg stud cell	30300103	Fluoride	16984488	11 lb/ton molten Al product	Uncontrolled, particulate fluoride, based on test data	97

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Primary aluminum production	3334	Vertical Soderberg stud cell	30300103	Fluoride	16984488	0.3 lb/ton molten Al product	Gaseous fluoride, dry alumina scrubber, based on test data	97
Primary aluminum production	3334	Vertical Soderberg stud cell	30300103	Fluoride	16984488	0.2 lb/ton molten Al product	Particulate fluoride, dry alumina scrubber, based on test data	97
Primary aluminum production	3334	Vertical Soderberg stud cell	30300103	Fluoride	16984488	1.5 lb/ton molten Al product	Gaseous fluoride, scrubber + ESP + spray screen + scrubber, based on test data	97
Primary aluminum production	3334	Vertical Soderberg stud cell	30300103	Fluoride	16984488	1.3 lb/ton molten Al product	Particulate fluoride, scrubber + ESP + spray screen + scrubber, based on test data	97
Primary aluminum production	3334	Vertical Soderberg stud cell	30300103	Fluoride	16984488	28.1 lb/ton molten Al product	Emissions to collector, gaseous fluoride, based on test data	97
Primary aluminum production	3334	Vertical Soderberg stud cell	30300103	Fluoride	16984488	9.3 lb/ton molten Al product	Emissions to collector, gaseous fluoride, based on test data	97
Primary aluminum production	3334	Vertical Soderberg stud cell	30300103	Fluoride	16984488	0.3 lb/ton molten Al product	Gaseous fluoride, spray tower, based on test data	97
Primary aluminum production	3334	Vertical Soderberg stud cell	30300103	Fluoride	16984488	2.3 lb/ton molten Al product	Particulate fluoride, spray tower, based on test data	97
Primary aluminum production	3334	Vertical Soderberg stud cell	30300103	Fluoride	16984488	0.3 lb/ton molten Al product	Gaseous fluoride, venturi scrubber, based on test data	97
Primary aluminum production	3334	Vertical Soderberg stud cell	30300103	Fluoride	16984488	0.4 lb/ton molten Al product	Particulate fluoride, venturi scrubber, based on test data	97
Primary aluminum production	3334	Vertical Soderberg stud cell	30300103	Fluoride	16984488	28.1 lb/ton molten Al product	Gaseous fluoride, multiple cyclones, based on test data	97
Primary aluminum production	3334	Vertical Soderberg stud cell	30300103	Fluoride	16984488	4.7 lb/ton molten Al product	Particulate fluoride, multiple cyclones, based on test data	97
Primary aluminum production	3334	Anode baking furnace	30300105	Fluoride	16984488	0.9 lb/ton molten Al product	Uncontrolled, gaseous fluoride, based on test data	97
Primary aluminum production	3334	Anode baking furnace	30300105	Fluoride	16984488	0.1 lb/ton molten Al product	Uncontrolled, particulate fluoride, based on test data	97
Primary aluminum production	3334	Anode baking furnace	30300105	Fluoride	16984488	0.04 lb/ton molten Al product	Gaseous fluoride, based on test data, spray tower	97
Primary aluminum production	3334	Anode baking furnace	30300105	Fluoride	16984488	0.03 lb/ton molten Al product	Particulate fluoride, based on test data	97

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Primary aluminum production	3334	Anode baking furnace	30300105	Fluoride	16984488	0.04 lb/ton molten Al product	test data, spray tower	97
Primary aluminum production	3334	Anode baking furnace	30300105	Fluoride	16984488	0.03 lb/ton molten Al product	Gaseous fluoride, based on test data, ESP	97
Primary aluminum production	3334	Anode baking furnace	30300105	Fluoride	16984488	0.009 lb/ton molten Al product	Particulate fluoride, based on test data, ESP	97
Primary aluminum production	3334	Anode baking furnace	30300105	Fluoride	16984488	0.002 lb/ton molten Al product	Gaseous fluoride, based on test data, dry alumina scrubber	97
Primary aluminum production	3334	Prebake cell/fugitives	30300108	Fluoride	16984488	1.2 lb/ton molten Al product	Particulate fluoride, based on test data, dry alumina scrubber	97
Primary aluminum production	3334	Prebake cell/fugitives	30300108	Fluoride	16984488	1.0 lb/ton molten Al product	Gaseous fluoride, based on test data	97
Primary aluminum production	3334	Horizontal Soderberg stud cell	30300109	Fluoride	16984488	2.2 lb/ton molten Al product	Particulate fluoride, based on test data	97
Primary aluminum production	3334	Vertical Soderberg stud cell	30300110	Fluoride	16984488	1.2 lb/ton molten Al product	Gaseous fluoride, fugitive, based on test data	97
Primary aluminum production	3334	Vertical Soderberg stud cell	30300110	Fluoride	16984488	4.9 lb/ton molten Al product	Particulate fluoride, fugitive, based on test data	97
Primary aluminum production	3334	Vertical Soderberg stud cell	30300110	Fluoride	16984488	1.7 lb/ton molten Al product	Fugitives, gaseous fluoride, based on test data	97
Primary aluminum smelting	3334	Anode paste process - pitch melter	303001	POM	2752 mg/m3		Fugitives, particulate fluoride, based on test data	97
Primary aluminum smelting	3334	Anode paste process - mixer	303001	POM	575 mg/m3		Uncontrolled	114
Primary aluminum smelting	3334	Anode paste process - triquetting	303001	POM	9.2 mg/m3		Uncontrolled	114
Primary aluminum smelting	3334	Horizontal Soderberg pot room - pot gas scrubber	30300102	POM	1.02 kg/metric ton Al		Uncontrolled	114
Primary aluminum smelting	3334	Vertical Soderberg pot room - pot gas dry scrubber	30300103	POM	0.001 kg/metric ton Al		Uncontrolled	114
Primary aluminum smelting	3334	Vertical Soderberg pot room - scrubber for ventilation air	30300103	POM	0.04 kg/metric ton Al		Uncontrolled	114

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Primary and secondary zinc oxide production	33	Entire process	3	Zinc	7440666	60 lb/ton produced	Ranges from 20 to 170 lb Zn/ton product, based on industry data from 1960s	159
Primary cadmium smelting	3339	Cadmium melting furnace	303	Cadmium	7440439	0.13 kg/Mg Cd produced	Uncontrolled, derived from emission factor	43, 44, 46
Primary cadmium smelting	3339	Cadmium holding furnace	303	Cadmium	7440439	0.13 kg/Mg Cd produced	Uncontrolled, derived from emission factor	43, 44, 46
Primary cadmium smelting	3339	Cadmium casting furnace	303	Cadmium	7440439	<1 kg/Mg Cd produced	Uncontrolled, derived from emission factor	43, 44, 46
Primary cadmium smelting	3339	Cadmium oxide furnace	303	Cadmium	7440439	2.46 kg/Mg Cd produced	Controlled with baghouse, derived from emission factor	43, 44, 46
Primary cadmium smelting	3339	Cadmium melting furnace	303	Cadmium	7440439	<1 kg/Mg Cd produced	Controlled with baghouse, derived from emission factor	43, 44, 46
Primary cadmium smelting	3339	Cadmium melting/casting furnace	303	Cadmium	7440439	<1 kg/Mg Cd produced	Controlled with wet scrubber, derived from emission factor	43, 44, 46
Primary cadmium smelting	3339	Cadmium tapping/casting	303	Cadmium	7440439	<1 kg/Mg Cd produced	Uncontrolled, derived from emission factor	43, 44, 46
Primary cadmium smelting	3339	Dust charging	303	Cadmium	7440439	0.14 kg/Mg Cd produced	Uncontrolled, derived from emission factor	43, 44, 46
Primary cadmium smelting	3339	Premelt department	303	Cadmium	7440439	1.33 kg/Mg Cd produced	Uncontrolled, derived from emission factor	43, 44, 46
Primary cadmium smelting	3339	Casting/holding furnace	303	Cadmium	7440439	3.77 g/Mg Cd produced	Uncontrolled, derived from emission factor	43, 44, 46
Primary cadmium smelting	3339	Purification sponge tank	303	Cadmium	7440439	3.77 g/Mg Cd produced	Uncontrolled, derived from one emission factor	43, 44, 46
Primary cadmium smelting	3339	Purification department stack	303	Cadmium	7440439	7.53 g/Mg Cd produced	Uncontrolled, derived from one emission factor	43, 44, 46
Primary cadmium smelting	3339	Solutions heating tank	303	Cadmium	7440439	0.382 kg/Mg Cd produced	Uncontrolled, derived from one emission factor	43, 44, 46
Primary cadmium smelting	3339	Cd baghouse	303	Cadmium	7440439	0.018 kg/Mg Cd produced	Derived from emission factors (n = 2)	43, 44, 46
Primary cadmium smelting	3339	Cd metal powder packaging	303	Cadmium	7440439	0.030 kg/Mg Cd produced	Controlled with baghouse, derived	43, 44, 46

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Primary cadmium smelting	3339	Fugitives packing dust collector	303	Cadmium	7440439	0.179 kg/Mg Cd produced	from one emission factor	43, 44, 46
Primary cadmium smelting	3339	Gypsum storage piles	303	Cadmium	7440439	<1 kg/Mg Cd produced	Controlled, derived from two emission factors	43, 44, 46
Primary copper smelting	3331	Copper smelter (primary)	303005	Arsenic	7440382	82.5 lb/hr	Controlled with dry scrubber, derived from one emission factor	3
Primary copper smelting	3331	Furnace and fugitives	303005	Arsenic	7440382	0.10 lb/ton Cu produced	Range 25-150 lb/hr, emission factor given as mid-range	31
Primary copper smelting	3331	Slag skimming	303005	Arsenic	7440382	0.025 lb/ton slag skimmed	Average value, controlled by air curtain secondary hood system, based on one plant only	31
Primary copper smelting	3331	Concentrate dryer	303005	Copper	7440508	0.05 kg/Mg conc. ore processed	Controlled by air curtain secondary hood system, based on one plant only	53, 97
Primary copper smelting	3331	Multiple hearth roaster	30300502	Copper	7440508	0.22 kg/Mg conc. ore processed	Uncontrolled, assume 1% Cu, PM factors, acid plant achieves 99% control, Cu content range <1-47%	53, 97
Primary copper smelting	3331	Converter	30300504	Copper	7440508	0.018 kg/Mg conc. ore processed	Controlled, based on assumed Cu content & PM fac., ESP achieves 99% control, assume Cu content 1% wt	53, 97
Primary copper smelting	3331	Reverberatory furnace	30300507	Copper	7440508	0.25 kg/Mg conc. ore processed	Uncontrolled, assume 0.1% copper, PM factors, acid plant or ESP achieves 99% control	53, 97
Primary copper smelting	3331	Electric furnace	30300510	Copper	7440508	0.5 kg/Mg conc. ore processed	Controlled, based on assumed Cu content & PM fac., ESP achieves 99% control, assume Cu content 1% wt	53, 97
Primary copper smelting	3331	Flash furnace	30300512	Copper	7440508	0.70 kg/Mg conc. ore processed	Uncontrolled, assume 1% Cu, PM factors, acid plant achieves 99% control, Cu content range <1-47%	53, 97
Primary lead smelting	3332	Entire process	303010	Arsenic	7440382	0.097 kg inorganic As/Mg lead produced	Rough estimate only, range 0.014-0.29 kg As/Mg lead, fabric filter control	32

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Primary lead smelting	3332	Sintering (updraft)	303010	Cadmium	7440439	0.639 kg/Mg Pb produced	Uncontrolled, derived from one emission factor	46, 97
Primary lead smelting	3332	Main stack (exhaust from acid plant and sinter baghouse)	303010	Cadmium	7440439	0.0305 kg/Mg Pb produced	Derived from one emission estimate	44, 46, 97
Primary lead smelting	3332	Baghouse for sinter crushing and returns	303010	Cadmium	7440439	0.102 g/Mg Pb produced	Derived from one emission estimate	44, 46, 97
Primary lead smelting	3332	Scrubber for sinter prep and returns	303010	Cadmium	7440439	0.038-0.095 g/Mg Pb produced	Derived from one emission estimate	44, 46, 97
Primary lead smelting	3332	Scrubber for blast furnace charge prep	303010	Cadmium	7440439	0.010-0.035 g/Mg Pb produced	Derived from one emission estimate	44, 46, 97
Primary lead smelting	3332	Blast furnace	303010	Cadmium	7440439	5.25 x 10E-3 lb/ton Pb	Controlled with a baghouse, stack sampling and engineering estimate	38
Primary lead smelting	3332	Blast furnace	30301002	Cadmium	7440439	23.47 kg/Mg Pb produced	Uncontrolled, derived from one emission factor	46, 97
Primary lead smelting	3332	Dross reverberatory furnace	30301003	Cadmium	7440439	1.3 kg/Mg Pb produced	Uncontrolled, derived from one emission factor	46, 97
Primary lead smelting	3332	Ore crushing	30301004	Cadmium	7440439	0.3775 g/Mg Pb produced	Uncontrolled, derived from one emission factor	46, 97
Primary lead smelting	3339	Refining furnace	303010	Copper	7440508	6.8 x 10E-6 kg/Mg Pb produced	Controlled, copper content 0.04%	53
Primary lead smelting	3339	Sintering	30301001	Copper	7440508	0.001 kg/Mg Pb produced	Controlled, copper content 2%	53
Primary lead smelting	3339	Blast furnace	30301002	Copper	7440508	0.0008 kg/Mg Pb produced	Controlled, copper content 0.29%	53
Primary ore processing	3339	Smelter stack	303	Mercury	7439976	0.16 kg/10E3 kg ore processed	Uncontrolled, based on stack tests (early 1970s)	113
Primary ore processing	3339	Hoeling operations	303	Mercury	7439976	0.01 kg/10E3 kg ore processed	Uncontrolled, based on stack tests (early 1970s)	113
Primary ore processing	3339	Retort operation	303	Mercury	7439976	0.001 kg/10E3 kg ore processed	Uncontrolled, based on stack tests (early 1970s)	113
Primary slab zinc production	3339	Roaster - electrolytic plant	303030	Copper	7440508	4.5 kg/Mg Zn produced	Controlled, copper content 3.7%	53
Primary slab zinc production	3339	Roaster - pyrometallurgical plant	303030	Copper	7440508	4.5 kg/Mg Zn produced	Controlled, copper content 3.7%	53

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Primary slab zinc production	3339	Sintering - pyrometallurgical plant	303030	Copper	7440508	0.003 kg/Mg Zn produced	Controlled, copper content 0.04%	53
Primary slab zinc production	3339	Vertical retorts - pyrometallurgical plant	30303005	Copper	7440508	0.001 kg/Mg Zn produced	Controlled, copper content 0.014%	53
Primary smelting of nickel ore	3339	Rotary dryers	303	Nickel	7440020	0.042-0.56 lb/ton of nickel produced	Controlled by cyclone/scrubber, based on source tests	110
Primary smelting of nickel ore	3339	Crusher house	303	Nickel	7440020	0.012-0.092 lb/ton of nickel produced	Controlled by fabric filter, based on source tests	110
Primary smelting of nickel ore	3339	Yaw bin	303	Nickel	7440020	0.00065-0.0019 lb/ton nickel produced	Controlled by fabric filter, based on source tests	110
Primary smelting of nickel ore	3339	Calciners	303	Nickel	7440020	0.46 lb/ton of nickel produced	Controlled by ESP, based on source tests	110
Primary smelting of nickel ore	3339	Skip hoists	303	Nickel	7440020	0.027-0.067 lb/ton of nickel produced	Controlled by fabric filters, based on source tests	110
Primary smelting of nickel ore	3339	Ore melter/roaster combination	303	Nickel	7440020	0.054-0.092 lb/ton of nickel produced	Controlled by fabric filters, based on source tests	110
Primary smelting of nickel ore	3339	Refining furnace	303	Nickel	7440020	0.013 lb/ton of nickel produced	Controlled by fabric filters, based on engineering estimates	110
Primary zinc oxide production	33	Entire process	3	Zinc oxide	1314132	0.004 kg/Mg production capacity	Controlled, based on ratio of emissions to capacity for one plant presented in the reference	66
Primary zinc production	333	Zinc smelter coker	303030	Cadmium	7440439	0.182 kg/metric ton	No controls, calculated from data presented in the reference	45
Primary zinc production	333	Zinc vertical retort	303030	Cadmium	7440439	0.00134 kg/metric ton produced	No controls, calculated from data presented in the reference	45
Primary zinc production	333	Zinc sinter plant	303030	Cadmium	7440439	1.46 kg/metric ton produced	Controlled with cyclone, calculated from data presented in the reference	45
Primary zinc production	333	Zinc sinter plant	303030	Cadmium	7440439	0.834 kg/metric ton produced	Controlled with cyclone and ESP, calculated from data presented in the reference	45
Primary zinc production by electrolytic process	3339	Entire process	303030	Zinc	7440666	0.2 kg/Mg production capacity	Largely controlled, based on average ratio of emissions to capacity for three plants	66

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Primary zinc smelting	333	Coking	303030	Cadmium	7440439	2.24 lb/ton Zn thru	Engineering estimate	36
Primary zinc smelting	333	Sintering with cyclone	303030	Cadmium	7440439	6.32 lb/ton Zn thru	Stack sampling	36
Primary zinc smelting	333	Sintering with cyclone and ESP	303030	Cadmium	7440439	2.16 lb/ton Zn thru	Stack sampling	36
Primary zinc smelting	333	Horizontal retort	303030	Cadmium	7440439	6 x 10E-3 lb/ton Zn produced	Engineering estimate	36
Primary zinc smelting	333	Vertical retort	303030	Cadmium	7440439	6.5 x 10E-2 lb/ton Zn thru	Stack sampling	36
Primary zinc smelting	333	Electrothermic process	303030	Cadmium	7440439	1.2 x 10E-2 lb/ton Zn produced	Engineering estimate	36
Primary zinc/zinc oxide smelting	333	Raw material storage - uncontrolled	303030	Cadmium	7440439	0.744 g/Mg Zn produced	Derived from emission factors	43
Primary zinc/zinc oxide smelting	333	Raw material storage - baghouse	303030	Cadmium	7440439	0.012 g/Mg Zn produced	Derived from emission factors	43
Primary zinc/zinc oxide smelting	333	Raw material storage - dry scrubber	303030	Cadmium	7440439	0.080 g/Mg Zn equivalent produced	Derived from emission factors	43
Primary zinc/zinc oxide smelting	333	Zn melting furnace - baghouse	303030	Cadmium	7440439	<1 kg/Mg Zn produced	Derived from emission factors	43
Primary zinc/zinc oxide smelting	333	Zn tapping/casting	303030	Cadmium	7440439	<1 kg/Mg Zn equivalent produced	Uncontrolled, derived from emission factors	43
Primary zinc/zinc oxide smelting	333	Zn dust process	303030	Cadmium	7440439	<1 kg/Mg Zn produced	Controlled with baghouse, derived from emission factors	43
Primary zinc/zinc oxide smelting	333	Roadways	303030	Cadmium	7440439	0.245 g/Mg Zn produced	Controlled, derived from emission factors (n = 3)	43
Primary zinc/zinc oxide smelting	333	Leach residue dryer	303030	Cadmium	7440439	0.234 g/Mg Zn produced	Controlled with baghouse, derived from emission factors	43
Primary zinc/zinc oxide smelting	333	Calcine handling	303030	Cadmium	7440439	0.049 g/Mg Zn produced	Controlled with baghouse, derived from emission factors	43
Primary zinc/zinc oxide smelting	333	Zn metal powder process	303030	Cadmium	7440439	<1 kg/Mg Zn produced	Controlled with baghouse, derived from emission factors (n = 3)	43
Primary zinc/zinc oxide smelting	333	Gypsum storage	303030	Cadmium	7440439	<1 kg/Mg Zn produced	Uncontrolled, derived from emission factor	43
Primary zinc/zinc oxide smelting	333	Screening tower	303030	Cadmium	7440439	<1 kg/Mg Zn produced	Controlled with baghouse, derived from emission factor	43

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Primary zinc/zinc oxide smelting	333	Electrolyte cooler	303030	Cadmium	7440439	<1 kg/Mg Zn produced	Controlled with demister, derived from emission factor	43
Primary zinc/zinc oxide smelting	333	Zinc ore dryer	303030	Cadmium	7440439	0.011 g/Mg Zn equivalent produced	Controlled with wet scrubber, derived from emission factor	43
Primary zinc/zinc oxide smelting	333	Zinc holding furnace	303030	Cadmium	7440439	<1 kg/Mg Zn equivalent produced	Controlled with baghouse, derived from emission factor	43
Primary zinc/zinc oxide smelting	333	Sinter machine	303030	Cadmium	7440439	10.18 g/Mg Zn equivalent produced	Controlled with baghouse, derived from emission factors (n = 2)	43
Primary zinc/zinc oxide smelting	333	Sinter sizing/crushing	303030	Cadmium	7440439	1.62 g/Mg Zn equivalent produced	Controlled with baghouse, derived from emission factor	43
Primary zinc/zinc oxide smelting	333	Zn furnace preheaters	303030	Cadmium	7440439	2.89 g/Mg Zn equivalent produced	Controlled with baghouse, derived from emission factor	43
Primary zinc/zinc oxide smelting	333	Refining column	303030	Cadmium	7440439	<1 kg/Mg Zn equivalent produced	Controlled with baghouse, derived from emission factors (n = 2)	43
Primary zinc/zinc oxide smelting	333	Maintenance dust collector	303030	Cadmium	7440439	<1 kg/Mg Zn equivalent produced	Controlled with baghouse, derived from emission factor	43
Primary zinc/zinc oxide smelting	333	Metal kiln fugitives	303030	Cadmium	7440439	<1 kg/Mg ZnO produced	Controlled with baghouse, derived from emission factor	43
Primary zinc/zinc oxide smelting	333	Metal kiln product	303030	Cadmium	7440439	0.033 g/Mg ZnO produced	Controlled with baghouse, derived from emission factor	43
Primary zinc/zinc oxide smelting	333	Fume kiln	303030	Cadmium	7440439	3.4 g/Mg ZnO produced	Controlled with baghouse, derived from emission factor	43
Production of epoxy resins (continuous process)	2821	Vapor recovery system	30101847	Epichlorohydrin	1066998	0.005 g/kg of product	98% efficient control device, based on one facility only	109
Production of epoxy resins (continuous process)	2821	Storage emissions	30101847	Epichlorohydrin	1066998	0.3 g/kg of product	Control status unspecified, based on one plant's estimates	109
Production of epoxy resins (continuous process)	2821	Storage emissions	30101847	Epichlorohydrin	1066998	0 g/kg of product	Tanks vented to balloon header, based on one plant's estimates	109
Production of ethylene from naphtha/gas oil	2911	Intermittent emissions, single compressor train	301197	Benzene	71432	791.9 g/Mg ethylene produced	Uncontr., hypothetical plant using 50% naphtha/50% gas oil as feed w/ ethylene capac. 344.2 kg/yr	132
Production of ethylene from naphtha/gas oil	2911	Intermittent emissions, dual compressor train	301197	Benzene	71432	101.1 g/Mg ethylene produced	Uncontr., hypothetical plant using 50% naphtha/50% gas oil as feed w/	132

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Production of ethylene from naphtha/gas oil	2911	Intermittent emissions, single compressor train	301197	Benzene	71432	79.2-15.8 g/Mg ethylene produced	ethylene capac. 544.2 Gg/yr Controlled, flares (90-98% efficiency)	132
Production of ethylene from naphtha/gas oil	2911	Storage tanks	301197	Benzene	71432	167 g/Mg ethylene produced	Uncontrolled	132
Production of ethylene from naphtha/gas oil	2911	Storage tanks	301197	Benzene	71432	22.1 g/Mg ethylene produced	Controlled, floating roof tank, 85% efficiency	132
Production of ethylene from naphtha/gas oil	2911	Intermittent emissions, dual compressor train	301197	Benzene	71432	10.1-2.0 g/Mg ethylene produced	Controlled, flares (90-98% efficiency)	132
Production of ethylene from naphtha/gas oil	2911	Charge gas compressor lubricating oil vent, single compressor train	30119745	Benzene	71432	0.200 g/Mg ethylene produced	Uncontr., hypothetical plant using 50% naphtha/50% gas oil as feed w/ ethylene capac. 544.2 Gg/yr	132
Production of ethylene from naphtha/gas oil	2911	Charge gas compressor lubricating oil vent, dual compressor train	30119745	Benzene	71432	0.400 g/Mg ethylene produced	Uncontr., hypothetical plant using 50% naphtha/50% gas oil as feed w/ ethylene capac. 544.2 Gg/yr	132
Production of ethylene from naphtha/gas oil	4925	Fugitive emissions	301197	Benzene	71432	45.9 g/Mg ethylene produced	Uncontrolled	132
Production of ethylene from naphtha/gas oil	4925	Fugitive emissions	301197	Benzene	71432	8.8 g/Mg ethylene produced	Detection/correction of leaks	132
Production of ethylene from naphtha/gas oil	4925	Secondary (wastewater, etc.)	301197	Benzene	71432	21.7 g/Mg ethylene produced	Uncontrolled	132
Production of flexible slabstock polyurethane foam	3086	Storage tank emissions	30101894	Methylene chloride	75092	0.003 kg/kg of MC consumed	Uncontrolled, calculated from questionnaire responses using AP-42 equations	73
Production of flexible slabstock polyurethane foam	3086	Storage tank emissions	30101894	Methylene chloride	75092	0.0005 kg/kg of MC consumed	Controlled by refrigerated condenser, based on engineering judgement	73
Production of flexible slabstock polyurethane foam	3086	Process vents (foam tunnel, curing area)	30101899	Methylene chloride	75092	0.98 kg/kg of MC consumed	Uncontrolled, based on facility questionnaire responses and engineering judgement	73
Production of flexible slabstock polyurethane foam	3086	Equipment leak emissions	30101899	Methylene chloride	75092	0.017 kg/kg of MC consumed	Uncontrolled, based on SOCM VOC emission factors and questionnaire responses	73
Production of flexible	3086	Process vents (foam tunnel,	30101899	Methylene chloride	75092	0.42 kg/kg of MC consumed	Curing area vents uncontrolled, foam	73

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
slabstock polyurethane foam		curing area)					tunnel vents control, by encl., & carbon adsorb, engineering judg.	
Production of flexible slabstock polyurethane foam	3086	Equipment leak emissions	30101899	Methylene chloride	75092	0.005 kg/kg of MC consumed	Controlled by leak detection and repair, based on engineering judgement	73
Production of phosgene	2869	Fugitive	301	Phosgene	75445	1.8 x 10E-4 lb/lb produced	Based on data from one site	13
Production of polyurethane foam	3086	Entire process	30101899	Methylene chloride	75092	1 kg/kg MC consumed	Uncontrolled, based on engineering judgement	69
Production of polyvinyl chloride (PVC)	2821	PVC suspension process using TCE as a reaction chain transfer agent	30101801	Trichloroethylene	79016	0.02 Mg/Mg of TCE consumed	Control status unspecified, based on aggregate emis. & consumption totals for PVC producers in 1978	105
Propylene glycol production	2869	Fugitives/equipment leaks	301753	Propylene oxide	75569	16.8 Mg/yr	Based on VOC of 28 Mg/yr (8 pump seals in service) and 60 wt% PO in streams	24
Propylene glycol production	2869	Process vent	301250	Propylene oxide	75569	0.000028 lb/lb PO consumed	Uncontrolled, based on test data and engineering judgement, assume all C3 is propylene	24
Propylene oxide production	2869	Peroxidation process, entire process	301205	Propylene	115071	0.44 g/kg PO produced		86
Propylene oxide production	2869	Chlorohydrination process, entire process	30120502	Propylene	115071	8 g/kg PO produced	Uncontrolled, based on test data and engineering judgement, assume all C3 is propylene	86
Propylene oxide production	2869	Fugitive emissions/equipment leaks	30120580	Propylene oxide	75569	94.5 Mg/yr	Based on estimated VOC of 331 Mg/yr (91 pump seals in service) and 0.285 wt% PO in streams	24
Propylene oxide production	2869	Storage emissions	407	Propylene oxide	75569	0.000031 lb/lb PO produced		24
Propylene oxide production by chlorohydrination	2869	Condenser vent	301205	Propylene oxide	75569	0.016 g/kg propylene oxide produced	Based on VOC of 0.006 g/kg and range of 89.9-100 wt% PO	24
Propylene oxide production by chlorohydrination	2869	Absorption	30120502	Epichlorohydrin	106898	1.54 g/kg produced	Control unclear, based on mass balance and testing	95
Propylene oxide production by chlorohydrination	2869	Absorption	30120502	Hydrogen chloride	7647010	3.73 g/kg produced	Control unclear, based on mass balance and testing	95
Propylene oxide production by chlorohydrination	2869	Absorption	30120502	Trichloropropane	7789991	0.405 g/kg produced	Control unclear, based on mass balance and testing	95

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Propylene oxide production by chlorohydrin	2869	Absorption	30120502	Dichloropropane	78875	8.42 g/kg produced	Control unclear, based on mass balance and testing	95
Propylene oxide production by chlorohydrin	2869	Absorption	30120502	Naphthalene	91203	0.08 g/kg produced	Control unclear, based on mass balance and testing	95
Propylene oxide production by chlorohydrin	2869	Reactor vent/saponification column	30120504	Propylene oxide	75569	0.039 g/kg propylene oxide produced	Based on VOC of 0.043 g/kg and 90% (wt) PO	24
Propylene oxide production, peroxidation process	2869	Condenser vent	301205	Propylene oxide	75569	0.0003 g/kg propylene oxide produced	Based on weighted VOC average emissions and weight percents PO	24
Propylene oxide production, peroxidation process	2869	Reactor vent/PO stripping	30120504	Propylene oxide	75569	0.019 g/kg propylene oxide produced		24
Pulp and paper bleaching	2611	Entire process		Chlorine	7782505	1 lb/ton pulp bleached		133
Pulp and paper bleaching	2611	Chlorine dioxide generation		Chlorine	7782505	0.4 lb/ton pulp bleached		133
Pulp/paper mill - integrated	2621	Dissolving Kraft pulp	307	Chloroform	67663	0.12 kg/Mg total products	During wastewater treatment	164
Pulp/paper mill - integrated	2621	Dissolving Kraft pulp	307	Chloroform	67663	0.013 kg/Mg total products	After wastewater treatment	164
Pulp/paper mill - integrated	2621	Market bleached Kraft pulp	307	Chloroform	67663	0.22 kg/Mg total products	During wastewater treatment	164
Pulp/paper mill - integrated	2621	Market bleached Kraft pulp	307	Chloroform	67663	0.0019 kg/Mg total products	After wastewater treatment	164
Pulp/paper mill - integrated	2621	Bleached Kraft paperboard, coarse papers	307	Chloroform	67663	0.23 kg/Mg total products	During wastewater treatment	164
Pulp/paper mill - integrated	2621	Bleached Kraft paperboard, coarse papers	307	Chloroform	67663	0.00090 kg/Mg total products	After wastewater treatment	164
Pulp/paper mill - integrated	2621	Soda and Kraft fine bleached papers	307	Chloroform	67663	0.13 kg/Mg total products	During wastewater treatment	164
Pulp/paper mill - integrated	2621	Soda and Kraft fine bleached papers	307	Chloroform	67663	0.0059 kg/Mg total products	After wastewater treatment	164
Pulp/paper mill - integrated	2621	Dissolving sulfite pulp	307	Chloroform	67663	0.069 kg/Mg total products	During wastewater treatment	164
Pulp/paper mill - integrated	2621	Dissolving sulfite pulp	307	Chloroform	67663	0.0035 kg/Mg total products	After wastewater treatment	164
Pulp/paper mill - integrated	2621	Sulfite papergrade pulp and paper	307	Chloroform	67663	0.38 kg/Mg total products	During wastewater treatment	164
Pulp/paper mill - integrated	2621	Sulfite papergrade pulp and paper	307	Chloroform	67663	0.074 kg/Mg total products	After wastewater treatment	164

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Purified terephthalic acid production	2869	Crystallizer vent	30103103	Terephthalic acid	100210	0.098 g/kg TPA	Uncontrolled, particulate	62
Purified terephthalic acid production	2869	Dryer vent	30103103	Terephthalic acid	100210	0.0012 g/kg TPA	Uncontrolled, particulate	62
Purified terephthalic acid production	2869	Feed slurry vent tank	30103199	Terephthalic acid	100210	0.088 g/kg TPA	Uncontrolled, particulate	62
Purified terephthalic acid production	2869	Atmospheric centrifuge tank	30103199	Terephthalic acid	100210	0.023 g/kg TPA	Uncontrolled, particulate	62
Purified terephthalic acid production	2869	Silo dust collector vent	30103199	Terephthalic acid	100210	0.0017 g/kg TPA	Uncontrolled, particulate	62
Rail tank car cleaning	4741	Entire process		Creosote		5.18 lb/tank car	Emission measurement	97
Rail tank car cleaning	4741	Entire process		Chlorobenzene	108907	0.0346 lb/tank car	Emission measurement	97
Rail tank car cleaning	4741	Entire process		Dichlorobenzene, 1,2-	95501	0.1662 lb/tank car	Emission measurement	97
Rail tank car cleaning	4741	Entire process	490003	Ethylene glycol	107211	0.0007 lb/tank car	Emission measurement	97
Refractory production	3297	Pressing process: ore crush/size/dry	305	Chromium	7440473	75 kg/Mg refractory produced	Uncontrolled, as total chromium, may overstate uncontrolled emissions	161
Refractory production	3297	Pressing process: ore crush/size/dry	305	Chromium	7440473	27 kg/Mg refractory produced	Controlled (64%), as total chromium	161
Refractory production	3297	Pressing process: brick firing kilns	305	Chromium	7440473	0.1 kg/Mg refractory produced	Uncontrolled, as total chromium	161
Refractory production	3297	Fusion casting: crush/size/dry	305	Chromium	7440473	75 kg/Mg refractory produced	Uncontrolled, as total chromium	161
Refractory production	3297	Fusion casting: crush/size/dry	305	Chromium	7440473	17 kg/Mg refractory produced	Controlled (77%), as total chromium	161
Refractory production	3297	Fusion melting/casting/breakout/finis hing	305	Chromium	7440473	37 kg/Mg refractory produced	Uncontrolled, as total chromium	161
Refractory production	3297	Fusion melting/casting/breakout/finis hing	305	Chromium	7440473	9 kg/Mg refractory produced	Controlled (77%), as total chromium	161

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Refractory production: chrome-magnesite brick	3297	Ore store/grind/size	305	Chromium	7440473	0.03 kg/Mg raw material processed	Fabric filter, as total chromium, range 0.01-0.05, material is chrome ore only	161
Refractory production: chrome-magnesite brick	3297	Dryer	305	Chromium	7440473	0.0019 kg/Mg raw material processed	Fabric filter, as total chromium, raw material is chrome ore and magnesite	161
Refractory production: chrome-magnesite brick	3297	Raw material storage silo	305	Chromium	7440473	0.0027 kg/Mg raw material processed	Fabric filter, as total chromium, raw material is chrome ore and magnesite	161
Refractory production: chrome-magnesite brick	3297	Press/fix: mixer	305	Chromium	7440473	0.0014 kg/Mg raw material processed	Fabric filter, as total chromium, raw material is magnesite and chrome ore	161
Refractory production: chrome-magnesite brick	3297	Press/fix: brick dryer	305	Chromium	7440473	0.00037 kg/Mg raw material processed	Scrubber, as total chromium, raw material is magnesite and chrome ore	161
Refractory production: chrome-magnesite brick	3297	Press/fix: brick kiln	305	Chromium	7440473	0.00044 kg/Mg raw material processed	Scrubber, as total chromium, raw material is magnesite and chrome ore	161
Refractory production: chromic oxide brick	3297	Milling	305	Chromium	7440473	0.48 kg/Mg raw material processed	Wet scrubber, as total chromium, raw material is chromic oxide	161
Refractory production: chromic oxide brick	3297	Spray dryer	305	Chromium	7440473	0.48 kg/Mg raw material processed	Fabric filter, as total chromium, raw material is chromic oxide	161
Refractory production: chromic oxide brick	3297	Mixer (pressing process)	305	Chromium	7440473	0.48 kg/Mg raw material processed	Wet scrubber, as total chromium, raw material is chromic oxide	161
Rotary spin wool glass fiber production	3296	Ductboard production	30501204	Phenol	108952	7.68 lb/ton finished product	Uncontrolled, may not represent all organics in exhaust stream	97
Rotary spin wool glass fiber production	3296	Heavy density product production	30501204	Phenol	108952	1.04 lb/ton finished product	Uncontrolled, may not represent all organics in exhaust stream	97
Rotary spin wool glass fiber production	3296	8-19 product production	30501204	Phenol	108952	1.92 lb/ton finished product	Uncontrolled, may not represent all organics in exhaust stream	97
Rotary spin wool glass fiber production	3296	8-11 product production	30501204	Phenol	108952	1.84 lb/ton finished product	Uncontrolled, may not represent all organics in exhaust stream	97
Rotary spin wool glass fiber production	3296	Ductboard production	30501204	Formaldehyde	50000	3.6 lb/ton finished product	Uncontrolled, may not represent all organics in exhaust stream	97

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Rotary spin wool glass fiber production	3296	Heavy density product production	30501204	Formaldehyde	50000	0.85 lb/ton finished product	Uncontrolled, may not represent all organics in exhaust stream	97
Rotary spin wool glass fiber production	3296	8-19/8-11 production	30501204	Formaldehyde	50000	0.9 lb/ton finished product	Uncontrolled, may not represent all organics in exhaust stream	97
Salicylic acid production (aspirin)	2833	General	301060	Phenol	108952	3.5 x 10E-4 lb/lb used	From engineering estimates	13
Salicylic acid production (aspirin)	2833	Fugitive	301060	Phenol	108952	1.4 x 10E-4 lb/lb used	From engineering estimates	13
Salicylic acid production (aspirin)	2833	Storage	30106010	Phenol	108952	1.0 x 10E-5 lb/lb used	From engineering estimates	13
Secondary copper smelting	33	Stack	304	Tetrachlorodibenzo-p-dioxins		1400 ng/dscm @ 3% O2	Estimated value from stack test results, does not include 2,3,7,8-isomer	115
Secondary copper smelting	33	Stack	304	Heptachlorodibenzo-p-dioxins		2300 ng/dscm @ 3% O2	Estimated value from stack test results	115
Secondary copper smelting	33	Stack	304	Hexachlorodibenzo-p-dioxins		2200 ng/dscm @ 3% O2	Estimated value from stack test results	115
Secondary copper smelting	33	Stack	304	Heptachlorodibenzo-p-dioxins		5900 ng/dscm @ 3% O2	Estimated value from stack test results	115
Secondary copper smelting	33	Stack	304	Octachlorodibenzo-p-dioxins		3700 ng/dscm @ 3% O2	Estimated value from stack test results	115
Secondary copper smelting	33	Stack	304	Tetrachlorodibenzo-furans		18,000 ng/dscm @ 3% O2	Estimated value from stack test results, does not include 2,3,7,8-isomer	115
Secondary copper smelting	33	Stack	304	Pentachlorodibenzo-furans		19,000 ng/dscm @ 3% O2	Estimated value from stack test results	115
Secondary copper smelting	33	Stack	304	Hexachlorodibenzo-furans		6000 ng/dscm @ 3% O2	Estimated value from stack test results	115
Secondary copper smelting	33	Stack	304	Heptachlorodibenzo-furans		11,000 ng/dscm @ 3% O2	Estimated value from stack test results	115
Secondary copper smelting	33	Stack	304	Octachlorodibenzo-furans		7200 ng/dscm @ 3% O2	Estimated value from stack test results	115
Secondary copper smelting	33	Stack	304	Tetrachlorodibenzo-p-dioxins	1746016	170 ng/dscm @ 3% O2	Estimated value from stack test results	115

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Secondary copper smelting	33	Stack	304	In, 2,3,7,8-Tetrachlorodibenzofuran, 2,3,7,8-	51207319	5100 ng/dscm @ 3% O ₂	results Estimated value from stack test results	115
Secondary copper smelting	3341	Cupola	304002	Cadmium	7440439	0.015-0.056 kg/Mg Cu produced	Controlled with baghouse, applicable only to facilities whose raw materials contain cadmium	44
Secondary copper smelting	3341	Top-blown rotary converter	304002	Cadmium	7440439	0.54-1.58 g/Mg Cu produced	Controlled with baghouse, applicable only to facilities whose raw materials contain cadmium	44
Secondary copper smelting	3341	Total emissions	304002	Cadmium	7440439	2 g/kg of copper scrap	Control status unknown	41
Secondary copper smelting	3341	Cupola - insulated copper wire	30400211	Copper	7440508	0.6 kg/Mg material charged	Uncontrolled, copper content 0.5%	53, 97
Secondary copper smelting	3341	Cupola - insulated copper wire	30400211	Copper	7440508	0.025 kg/Mg material charged	ESP, copper content 0.5%	53, 97
Secondary copper smelting	3341	Cupola - scrap copper/brass	30400212	Copper	7440508	0.18 kg/Mg material charged	Uncontrolled, estimated copper 0.5%	53, 97
Secondary copper smelting	3341	Cupola - scrap copper/brass	30400212	Copper	7440508	0.006 kg/Mg material charged	Estimated copper 0.5%, ESP	53, 97
Secondary copper smelting	3341	Reverberatory furnace - brass/bronze	30400215	Copper	7440508	1.8 kg/Mg material charged	None, copper content 9.9%	53, 97
Secondary copper smelting	3341	Reverberatory furnace - brass/bronze	30400215	Copper	7440508	0.13 kg/Mg material charged	Baghouse, copper content 9.9%	53, 97
Secondary fiber mills	2611	Deink - fine papers	307	Chloroform	67663	0.36 kg/Mg total products	During wastewater treatment	164
Secondary fiber mills	2611	Deink - fine papers	307	Chloroform	67663	0.013 kg/Mg total products	After wastewater treatment	164
Secondary fiber mills	2611	Deink - tissue papers	307	Chloroform	67663	0.16 kg/Mg total products	During wastewater treatment	164
Secondary fiber mills	2611	Deink - tissue papers	307	Chloroform	67663	0.0067 kg/Mg total products	After wastewater treatment	164
Secondary iron and steel production	332	Sinter windbox	304	Cadmium	7440439	2 x 10E-3 lb/ton feed	Uncontrolled	38
Secondary iron and steel production	332	Sinter windbox	304	Cadmium	7440439	9.5 x 10E-4 lb/ton feed	Controlled with rotoclone and ESP	38
Secondary iron and steel production	332	Open hearth	304	Cadmium	7440439	5.78 x 10E-3 lb/ton steel	Uncontrolled, stack sampling	38
Secondary iron and steel production	332	Open hearth	304	Cadmium	7440439	1.1 x 10E-4 lb/ton steel	Controlled with ESP, stack sampling	38

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Secondary iron and steel production	332	Basic oxygen furnace	304	Cadmium	7440439	4.1×10^{-5} lb/ton steel	Uncontrolled, based on Cd content in feed, fuel, or emissions	38
Secondary iron and steel production	332	Basic oxygen furnace	304	Cadmium	7440439	2.79×10^{-5} lb/ton steel	Controlled with venturi scrubber or ESP	38
Secondary iron and steel production	332	Electric arc furnace	304	Cadmium	7440439	3.4×10^{-3} lb/ton steel	Engineering estimate, stack test, concentration of Cd in fuel, feed, or emissions	38
Secondary lead smelting	3341	Blast furnace and reverberatory furnace pair	304004	Arsenic	7440382	3.2 g/Mg lead produced	Average rate, controlled with fabric filter	30
Secondary lead smelting	3341	Blast furnace and reverberatory furnace pair	304004	Arsenic	7440382	1.4 g/Mg lead produced	Average rate, controlled with fabric filter and wet scrubber	30
Secondary lead smelting	3341	Blast and reverberatory furnaces	304004	Arsenic	7440382	0.036 g/kg lead produced	For small smelter, control with fabric filter	32
Secondary lead smelting	3341	Fugitives - furnace charging and tapping	304004	Arsenic	7440382	0.028 g/kg lead produced	For small smelter, control with fabric filter	32
Secondary lead smelting	3341	Area emission - material storage and hauling roads	304004	Arsenic	7440382	0.06 g/kg lead produced	For small smelter	32
Secondary lead smelting	3341	Reverberatory furnace	30400402	Cadmium	7440439	1.6×10^{-6} lb/ton Pb	Controlled with cyclone + baghouse stack sampling + engineering estimate	38
Secondary lead smelting	3341	Reverberatory furnace	30400402	Cadmium	7440439	5×10^{-7} lb/ton Pb	Controlled with three cyclones and baghouse	38
Secondary lead smelting	3341	Secondary smelter	30400403	Pb		1107 ng/Mm3	Controlled, device not specified, average of 4 tests, smelter processing batteries	114
Secondary lead smelting	3341	Blast furnace	30400403	Cadmium	7440439	2×10^{-6} lb/ton Pb	Controlled with three cyclones + baghouse stack sampling + engineering estimate	38
Secondary lead smelting	3341	Special battery smelting furnace and fugitives	304005	Arsenic	7440382	0.31 g/Mg lead produced	Average proc. and fugitive factor, controlled by fabric filter	30
Secondary mercury production	3341	Entire process, production by vacuum distillation	304	Mercury	7439976	0.026 g/kg of Hg produced	Control status and basis unspecified	112
Secondary mercury production	3341	Entire process	304	Mercury	7439976	20 kg/10E3 kg Hg processed	Uncontrolled, based on engineering	113

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Secondary processing of nickel-bearing scrap	3341	Stainless steel scrap melting furnace	304010	Nickel	7440020	10 lb/ton of nickel charged	Judgement	
Secondary processing of nickel-bearing scrap	3341	Stainless steel scrap melting furnace	304010	Nickel	7440020	0.6 lb/ton of steel produced	Controlled, based on questionnaire survey results	110
Secondary processing of nickel-bearing scrap	3341	Nickel alloy steel scrap melting furnace	304010	Nickel	7440020	10 lb/ton of nickel charged	Controlled, based on questionnaire survey results	110
Secondary processing of nickel-bearing scrap	3341	Iron and steel scrap melting furnace	304010	Nickel	7440020	0.0015 lb/ton of iron and steel produced	Controlled, based on material balance	110
Secondary processing of nickel-bearing scrap	3341	Other nickel alloy scrap melting furnace	304010	Nickel	7440020	2 lb/ton of nickel charged	Controlled, based on engineering judgement	110
Secondary processing of nickel-bearing scrap	3341	Copper base alloy scrap melting furnaces	304010	Nickel	7440020	2 lb/ton of nickel charged	Controlled, based on engineering judgement	110
Secondary processing of nickel-bearing scrap	3341	Electrical alloy scrap melting furnaces	304010	Nickel	7440020	2 lb/ton of nickel charged	Controlled, based on engineering judgement	110
Secondary processing of nickel-bearing scrap	3341	Cast iron scrap melting furnaces	304010	Nickel	7440020	20 lb/ton of nickel charged	Uncontrolled, based on engineering judgement	110
Secondary zinc production	3341	Total emissions	304008	Cadmium	7440439	1 x 10E-2 lb/ton Zn produced	Uncontrolled	38
Secondary zinc production	3341	Entire process	304008	Zinc	7440666	20 lb/ton produced	Based on industry data from 1960s, ranges from 0.01 to 124 lb/ton	159
Secondary zinc smelting	3341	Kettle sweating	30400814	Zinc oxide	1314132	0.28 lb/ton product	Based on 0.56 lb/t x 50% wt. Zn in PM, fugitive	97
Service stations	5541	Tank breathing and emptying	406003	Ethylene dibromide	106934	0.00156 mg/liter throughput	Calculated from gasoline vapor estimates	97
Service stations	5541	Tank breathing and emptying	406003	Ethylene dichloride	107062	0.0159 mg/liter throughput	Calculated from gasoline vapor estimates	97
Service stations	5541	Tank breathing and emptying	406003	Gasoline vapor	8006619	120 mg/liter throughput	Engineering estimate, RVP = 10 psi	97
Service stations	5541	Splash filling of underground tanks	40600301	Ethylene dibromide	106934	0.0179 mg/liter throughput	Calculated from gasoline vapor estimates	97
Service stations	5541	Filling underground tank (splash filling), loaded gasoline	40600301	Ethylene dichloride	107062	0.26 mg/liter transferred	Uncontrolled, calculated based on engineering judgement	51

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Service stations	5541	Splash filling of underground tanks	40600301	Ethylene dichloride	107062	0.183 mg/liter throughput	Calculated from gasoline vapor estimates	97
Service stations	5541	Splash filling of underground tanks	40600301	Gasoline vapor	8006619	1360 mg/liter throughput	Engineering estimate, EYP = 10 psia	97
Service stations	5541	Submerged filling of underground tanks	40600302	Ethylene dibromide	106934	0.0114 mg/liter throughput	Calculated from gasoline vapor estimates	97
Service stations	5541	Submerged filling of underground tanks	40600302	Ethylene dichloride	107062	0.117 mg/liter throughput	Calculated from gasoline vapor estimates	97
Service stations	5541	Submerged filling of underground tanks	40600302	Gasoline vapor	8006619	880 mg/liter throughput	Engineering estimate, EYP = 10 psia	97
Service stations	5541	Balanced submerged filling of underground tanks	40600306	Ethylene dibromide	106934	0.00046 mg/liter throughput	Calculated from gasoline vapor estimates	97
Service stations	5541	Balanced submerged filling of underground tanks	40600306	Ethylene dichloride	107062	0.0053 mg/liter throughput	Calculated from gasoline vapor estimates	97
Service stations	5541	Balanced submerged filling of underground tanks	40600306	Gasoline vapor	8006619	40 mg/liter throughput	Engineering estimate, EYP = 10 psia	97
Service stations	5541	Refueling operations - displacement losses (uncontrolled)	406004	Ethylene dibromide	106934	0.0172 mg/liter throughput	Calculated from gasoline vapor estimates	97
Service stations	5541	Refueling operations - displacement losses (controlled)	406004	Ethylene dibromide	106934	0.00172 mg/liter throughput	Calculated from gasoline vapor estimates	97
Service stations	5541	Refueling operations - spillage	406004	Ethylene dibromide	106934	0.00104 mg/liter throughput	Calculated from gasoline vapor estimates	97
Service stations	5541	Refueling operations - displacement losses (uncontrolled)	406004	Ethylene dichloride	107062	0.175 mg/liter throughput	Calculated from gasoline vapor estimates	97
Service stations	5541	Refueling operations - displacement losses (controlled)	406004	Ethylene dichloride	107062	0.0175 mg/liter throughput	Calculated from gasoline vapor estimates	97
Service stations	5541	Refueling operations - spillage	406004	Ethylene dichloride	107062	0.0106 mg/liter throughput	Calculated from gasoline vapor estimates	97
Service stations	5541	Refueling operations - spillage	406004	Gasoline vapor	8006619	1320 mg/liter throughput	Engineering estimate, EYP = 10 psia	97

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Service stations	5541	displacement losses (uncontrolled) Refueling operations - displacement losses (uncontrolled)	400004	Gasoline vapor	8006639	132 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Service stations	5541	Refueling operations - spillage	400004	Gasoline vapor	8006639	80 mg/liter throughput	Engineering estimate, RVP = 10 psia	97
Service stations	5541	Vehicle refueling operations, spillage	40000402	Ethylene dichloride	107062	0.016 mg/liter of leaded gas transferred	Uncontrolled, calculated based on engineering judgment	51
Service stations	5541	Vehicle refueling operations, displacement losses	40000403	Ethylene dichloride	107062	0.21 mg/liter leaded gasoline transferred	Uncontrolled, calculated based on engineering judgment	51
Service stations	5541	Vehicle refueling operations, displacement losses	40000403	Ethylene dichloride	107062	0.021 mg/liter of leaded gas transferred	Controlled, calculated based on engineering judgment	51
Sewage sludge incineration	49	Stack	5	Tetrachlorodibenzofurans		19 - 150 ng/dscm @ 3% O ₂	Three locations tested, does not include 2,3,7,8-isomer	115
Sewage sludge incineration	49	Stack	5	Pentachlorodibenzofurans		4.8 - 110 ng/dscm @ 3% O ₂	Three locations tested, does not include 2,3,7,8-isomer	115
Sewage sludge incineration	49	Stack	5	Hexachlorodibenzofurans		0.10 - 32 ng/dscm @ 3% O ₂	Three locations tested, does not include 2,3,7,8-isomer	115
Sewage sludge incineration	49	Stack	5	Heptachlorodibenzofurans		Not detectable - 60 ng/dscm @ 3% O ₂	Three locations tested, does not include 2,3,7,8-isomer, detection limit <0.1 ng/dscm @ 3% O ₂	115
Sewage sludge incineration	49	Stack	5	Octachlorodibenzofurans		0.07 - 45 ng/dscm @ 3% O ₂	Three locations tested	115
Sewage sludge incineration	49	Stack	5	Tetrachlorodibenzo-p-dioxins		0.40 - 11 ng/dscm @ 3% O ₂	Three locations tested, does not include 2,3,7,8-isomer	115
Sewage sludge incineration	49	Stack	5	Pentachlorodibenzo-p-dioxins		Not detectable - 1.1 ng/dscm @ 3% O ₂	Three locations tested, detection limit <0.1 ng/dscm @ 3% O ₂	115
Sewage sludge incineration	49	Stack	5	Hexachlorodibenzo-p-dioxins		Not detectable - 7.0 ng/dscm @ 3% O ₂	Three locations tested, detection limit <0.1 ng/dscm @ 3% O ₂	115
Sewage sludge incineration	49	Stack	5	Heptachlorodibenzo-p-dioxins		0.22 - 21 ng/dscm @ 3% O ₂	Three locations tested	115
Sewage sludge incineration	49	Stack	5	Octachlorodibenzo-p-dioxins		0.98 - 15 ng/dscm @ 3% O ₂	Three locations tested	115

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Sewage sludge incineration	49	Stack	5	Tetrachlorodibenzop-dioxin, 2,3,7,8-	1746016	Not detectable - 0.14 ng/dscm @ 3% O ₂	Three locations tested, detection limit <0.1 ng/dscm @ 3% O ₂	115
Sewage sludge incineration	49	Stack	5	Tetrachlorodibenzofuran, 2,3,7,8-	51207319	2.1 - 54 ng/dscm @ 3% O ₂	Two locations tested	115
Sewage sludge incineration	495	Multiple hearth - flue gas	5	Polychlorinated dibenzo-p-dioxins		483 - 1140 ng/m ³	Controlled with a water scrubber, total of three samples	119
Sewage sludge incineration	495	Multiple hearth - flue gas	5	Polychlorinated dibenzofurans		501 - 2248 ng/m ³	Controlled with a water scrubber, total of three samples	119
Sewage sludge incineration	4952	Incinerator	5	Benzo(a)pyrene	50328	0.004 g/kg dry sludge feed	Average of 0.002, 0.007, 2 incinerators each with wet scrubber, 1 common stack	114
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Dichlorodibenzodioxin (total)		0.0695 ug/kg dry sludge	Average of two tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Trichlorodibenzodioxin (total)		0.1567 ug/kg dry sludge	Average of two tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Tetrachlorodibenzop-dioxins, total		0.0777 ug/kg dry sludge	Average of five tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Monochlorodibenzofurans, total		0.04 ug/kg dry sludge	Average of two tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Dichlorodibenzofurans, total		0.2737 ug/kg dry sludge	Average of two tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Trichlorodibenzofurans, total		0.728 ug/kg dry sludge	Average of two tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Tetrachlorodibenzofurans, total		0.4721 ug/kg dry sludge	Average of five tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Nitrophenol, 4-	100027	<214 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Nitrophenol, 4-	100027	<356 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Ethyl benzene	100414	1.35 mg/kg dry sludge	Five tests, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Ethyl benzene	100414	0.02 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Dimethylphenol, 2,4-	105679	<17 ug/kg dry sludge	One test, scrubber	101

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	BCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Dimethylphenol, 2,4-	105679	<28 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Bichlorobenzene, 1,4-	106467	<19 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Dichlorobenzene, 1,4-	106467	6069 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Ethylene dichloride	107062	0.9 mg/kg dry sludge	Two tests, scrubber, both isomers	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Ethylene dichloride	107062	0.005 mg/kg dry sludge	One test, scrubber, both isomers	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Acrylonitrile	107131	16.3 mg/kg dry sludge	Average of four tests, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Acrylonitrile	107131	<0.03 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Toluene	108683	8.6 mg/kg dry sludge	Average of five tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Toluene	108683	0.07 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Chlorobenzene	108907	1.2 mg/kg dry sludge	Average of five tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth incinerator	50100506	Chlorobenzene	108907	0.01 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Phenol	108952	34,542 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Phenol	108952	<19 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Bis(2-ethyl hexyl)phthalate	117817	1400 ug/kg dry sludge	Average of two tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Bis(2-ethyl hexyl)phthalate	117817	266 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Chloro-m-cresol, p-	119335	<28 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Chloro-m-cresol, p-	119335	<47 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Trichlorobenzene, 1,2,4-	120821	<28 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Trichlorobenzene, 1,2,4-	120821	<1090 ug/kg dry sludge	Average of two tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Dichlorophenol, 2,4-	120832	<23 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Dichlorophenol, 2,4-	120832	<38 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Perchloroethylene	127184	0.05 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Perchloroethylene	127184	7.8 mg/kg dry sludge	One test, scrubber	101

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Xylene	1330207	4.04 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Polychlorinated biphenyls	1336363	<540-408 ug/kg dry sludge	One test, scrubber, range over seven different PCB	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Polychlorinated biphenyls	1336363	<563-476 ug/kg dry sludge	One test, scrubber, range over seven different PCB	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Tetrachlorodibenzop-dioxin, 2,3,7,8-	1746016	0.0009 ug/kg dry sludge	Average of four tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Aldrin	309902	<25 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Aldrin	309902	<58 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Tetrachlorodibenzofuran, 2,3,7,8-	51207319	0.1232 ug/kg dry sludge	Average of four tests, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Dinitrophenol, 2,4-	51285	<686 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Dinitro-o-cresol, 2,6-	536521	<191 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Dinitro-o-cresol, 2,6-	536521	<47 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Dichlorobenzene, 1,3-	561731	<19 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Dichlorobenzene, 1,3-	561731	1300 ug/kg dry sludge	Average of two tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Carbon tetrachloride	56235	0.05 mg/kg dry sludge	Average of five tests, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Carbon tetrachloride	56235	0.01 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Chloroform	57149	<540 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Chloroform	57149	<563 ug/kg dry sludge	Average of six tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Chloroform	67663	3.6 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Chloroform	67663	3.88 mg/kg dry sludge	Average of five tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Benzene	71432	10.2 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Benzene	71432	0.4 mg/kg dry sludge	Average of six tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Methyl chloroform	71556	1.3 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Methyl chloroform	71556	0.04 mg/kg dry sludge	One test, scrubber	101

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Sewage sludge incineration	4953	Stack, multiple-hearth	50100506	Manganese	7439965	0.004 lb/ton of waste incinerated	Controlled by wet scrubber, based on emission tests	107
Sewage sludge incineration	4953	Stack, fluidized-bed	50100506	Manganese	7439965	0.0006 lb/ton of waste incinerated	Controlled by wet scrubber, based on emission tests	107
Sewage sludge incineration	4953	Stack	50100506	Mercury	7439976	7 mg/kg dry sludge	Assumes 100% emitted, conventional scrubbers have low kg concentration efficiency	155
Sewage sludge incineration	4953	Multiple hearth	50100506	Nickel	7440020	0.003 lb/ton of solid waste incinerated	Controlled by wet scrubber, calculated based on source tests	110
Sewage sludge incineration	4953	Fluidized bed	50100506	Nickel	7440020	0.0003 lb/ton of solid waste incinerated	Controlled by wet scrubber, calculated based on source tests	110
Sewage sludge incineration	4953	Multiple hearth	50100506	Nickel	7440020	0.15 lb/ton of solid waste incinerated	Uncontrolled, calculated based on source tests	110
Sewage sludge incineration	4953	Fluidized bed	50100506	Nickel	7440020	0.15 lb/ton of solid waste incinerated	Uncontrolled, calculated based on source tests	110
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Nickel	7440020	30 mg/kg dry sludge	Average of three tests, scrubber (range 4.1-78.06)	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Nickel	7440020	1.6 mg/kg dry sludge	Average of 10 tests, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Arsenic	7440382	0.06 mg/kg dry sludge	Average of two tests, venturi and impingement scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Arsenic	7440382	1.5 mg/kg dry sludge	Average of ten tests, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Beryllium	7440417	<0.001 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Beryllium	7440417	<0.001 mg/kg dry sludge	Average of two tests, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Cadmium	7440439	0.74 mg/kg dry sludge	Average of three tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Cadmium	7440439	9.9 mg/kg dry sludge	Average of 13 tests, scrubber, range 0.26-63	101
Sewage sludge incineration	4953	Fluidized bed	50100506	Chromium	7440473	0.0003 kg/kg solid waste incinerated	Wet scrubber, as total chromium	161
Sewage sludge incineration	4953	Multiple hearth	50100506	Chromium	7440473	0.0077 kg/kg solid waste incinerated	Controlled, as total chromium	161
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Chromium	7440473	0.46 mg/kg dry sludge	Average of three tests, scrubber,	101

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SEC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Chromium	7440473	4.04 mg/kg dry sludge	total chromium	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Copper	7440508	0.31 mg/kg dry sludge	Average of 13 tests, scrubber, total chromium	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Copper	7440508	10.9 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Zinc	7440666	1.92 mg/kg dry sludge	Average of five tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Zinc	7440666	25.4 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Methyl chloride	74873	5.16 mg/kg dry sludge	Average of 11 tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Ethyl chloride	75003	0.80 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Vinyl chloride	75014	4.1 mg/kg dry sludge	Average of four tests, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Vinyl chloride	75014	<0.01 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Acetonitrile	75058	10.71 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Acetonitrile	75058	0.79 mg/kg dry sludge	One test, scrubber and afterburner, better operating conditions	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Methylene chloride	75092	2.3 mg/kg dry sludge	Average of five tests, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Methylene chloride	75092	0.07 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Bromodichloromethane	75274	1.5 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Dichloroethane, 1,1-	75343	0.23 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Dichloroethane, 1,1-	75354	0.25 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Selenium	7782492	0.40 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Selenium	7782492	1.6 mg/kg dry sludge	Average of four tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Methyl ethyl ketone	78033	5.34 mg/kg dry sludge	Average of three tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Trichloroethylene	79016	1.9 mg/kg dry sludge	Average of six tests, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Trichloroethylene	79016	0.01 mg/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Pentachlorophenol	87865	<90 ug/kg dry sludge	One test, scrubber	101

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Pentachlorophenol	87865	<150 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Trichlorophenol, 2,4,6-	88662	<35 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Trichlorophenol, 2,4,6-	88662	<37 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Nitrophenol, 2-	88755	3821 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Nitrophenol, 2-	88755	<66 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Dichlorodibenzene, 1,2-	95501	<19 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Dichlorodibenzene, 1,2-	95501	1700 ug/kg dry sludge	Average of two tests, scrubber	101
Sewage sludge incineration	4953	Multiple hearth furnace	50100506	Chlorophenol, 2-	95578	<12 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Fluidized-bed furnace	50100506	Chlorophenol, 2-	95578	<20 ug/kg dry sludge	One test, scrubber	101
Sewage sludge incineration	4953	Incinerator stack	50100701	Hydrogen chloride	7647010	0.75 kg/Mg dried sludge	Uncontrolled	97
Sewage sludge incineration	4953	Incinerator stack	50100701	Hydrogen chloride	7647010	0.15 kg/Mg dried sludge	Scrubber	97
Sewage sludge incineration	4953	Fluidized-bed incinerator	502005	Selenium	7782492	0.00002 g/kg sludge	Calculated with 0.14 g/day, 600 kg sludge/hr, 10 hr/day	20
Sewage sludge incineration	4953	Stack gases	50200506	Benzene	71432	5-31 ug/dscm	Emission tests using volatile organic sampling train	132
Silicomanganese production by electric arc furnace process	3313	Ladle treatment	303	Manganese	7439965	6.0 lb/ton of Mn product	Control status unspecified, calculated based on engineering judgment	107
Silicomanganese production by electric arc furnace process	3313	Casting	303	Manganese	7439965	0.26 lb/ton of Mn product	Control status unspecified, calculated based on engineering judgment	107
Silicomanganese production by electric arc furnace process	3313	Crushing/grinding/sizing	303	Manganese	7439965	0.13 lb/ton of Mn product	Control status unspecified, calculated based on engineering judgment	107
Silicomanganese production by electric arc furnace process	3313	Sealed submerged-arc electric furnace	303	Manganese	7439965	0.002 lb/MWh consumed by furn. operation	Controlled by scrubbers, calculated from source tests of total particulate emissions	107
Silicomanganese production by electric arc furnace process	3313	Open submerged-arc electric furnace	30300605	Manganese	7439965	0.11 lb/MWh consumed by furn. operation	Controlled by scrubbers, calculated from source tests of total particulate emissions	107

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Silicomanganese production by electric arc furnace process	3313	Semi-sealed submerged-arc electric furnace	30100702	Manganese	7439965	0.032 lb/ton of product	Controlled by scrubbers, calculated from source tests of total particulate emissions	107
Silicomanganese production by electric arc furnace process	3313	Semi-sealed submerged-arc electric furnace	30100702	Manganese	7439965	0.009 lb/MWh consumed by furnace operation	Controlled by scrubbers, calculated from source tests of total particulate emissions	107
Solid urea production	2873	Drum granulation	30104004	Formaldehyde	50000	0.0055 kg/Mg of solid urea produced	Uncontrolled, based on source tests	106
Solid urea production	2873	Drum granulation	30104004	Formaldehyde	50000	0.0027 kg/Mg of solid urea produced	Controlled by wet scrubber, based on source tests	106
Solid urea production	2873	Fluidized bed prilling (agricultural grade)	30104010	Formaldehyde	50000	0.0095 kg/Mg of solid urea produced	Uncontrolled, based on source tests	106
Solid urea production	2873	Fluidized bed prilling (agricultural grade)	30104010	Formaldehyde	50000	0.0004 kg/Mg of solid urea produced	Controlled by wet scrubber, based on source tests	106
Solid urea production	2873	Fluidized bed prilling (feed grade)	30104011	Formaldehyde	50000	0.0020 kg/Mg of solid urea produced	Uncontrolled, based on source tests	106
Solid urea production	2873	Fluidized bed prilling (feed grade)	30104011	Formaldehyde	50000	0.0005 kg/Mg of solid urea produced	Controlled by wet scrubber, based on source tests	106
Solvent based paints		Coating application	40200101	Xylene	1330207	0.87 lb/lb xylene used	Estimated	13
Solvent polyvinyl chloride polymerization	2821	Fugitives	30101801	Vinyl chloride	75014	0.03 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Solvent polyvinyl chloride polymerization	2821	Reactor opening loss	30101801	Vinyl chloride	75014	0.50 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Solvent polyvinyl chloride polymerization	2821	Stripper loss	30101801	Vinyl chloride	75014	0.05 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Solvent polyvinyl chloride polymerization	2821	Monomer recovery vent	30101801	Vinyl chloride	75014	0.31 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Solvent polyvinyl chloride polymerization	2821	Area sources - silo, dryer, bagger, loading	30101801	Vinyl chloride	75014	0.83 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Solvent polyvinyl chloride polymerization	2821	Reactor safety valve vents	30101801	Vinyl chloride	75014	0.06 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Solvent polyvinyl chloride polymerization	2821	Process water	30101801	Vinyl chloride	75014	0.002 kg VC monomer/100 kg	Industry average, control level at	26

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
polymerization								
Solvent recycling facility	4953	Evaporation pond	503008	Toluene	100883	PVC prod. 0.63 kg/hectare-hr	existing plants unknown, variable Based on two different sampling methods at the same site	12
Stationary internal combustion engines		Gas turbines	2	Formaldehyde	50000	4.0 ng/joule heat input	Uncontrolled, calculated based on engineering judgement	106
Stationary internal combustion engines		Gas-fired reciprocating engines	2	Formaldehyde	50000	5.7 ng/joule heat input	Uncontrolled, calculated based on engineering judgement	106
Stationary internal combustion engines		Gasoline and diesel-powered industrial equipment	202	Formaldehyde	50000	13.2 ng/joule heat input	Uncontrolled, calculated based on engineering judgement	106
Steel foundries	332	Electric arc furnace	304.00701	Manganese	7439965	0.52 lb/ton of iron	Uncontrolled, calculated based on engineering judgement	107
Steel foundries	332	Electric arc furnace	304.00701	Manganese	7439965	0.026 lb/ton of iron	Controlled by ESP, calculated based on engineering judgement	107
Steel foundries	332	Electric arc furnace	304.00701	Manganese	7439965	0.013 lb/ton of iron	Controlled by venturi scrubber, calculated based on engineering judgement	107
Steel foundries	332	Electric arc furnace	304.00701	Manganese	7439965	0.0008 lb/ton of iron	Controlled by fabric filter, calculated based on engineering judgement	107
Steel foundries	332	Induction furnace	304.00705	Manganese	7439965	0.004 lb/ton of iron	Uncontrolled, calculated based on engineering judgement	107
Steel mill	331	Open hearth furnace	303009	Cadmium	7440439	0.00014 kg/metric ton produced	Uncontrolled, calculated from data presented in the reference	45
Steel mill	331	Open hearth furnace	303009	Cadmium	7440439	2.2 x 10E-6 kg/metric ton produced	Controlled with ESP, calculated from data presented in the reference	45
Steel pickling	3312	Absorber towers	30300910	Hydrogen chloride	7667010	0.00055-0.0011 lbm/ton steel pickled	Calculated from information in reference	133
Steel production	3312	Basic oxygen furnace operations, Q-BOP process melting/refining	303009	Manganese	7439965	0.00056 lb/ton of steel	Controlled by scrubber, calculated based on engineering judgement	107
Steel production	3312	Basic oxygen furnace operations, BOF monitor	303009	Manganese	7439965	0.005 lb/ton of steel	All sources, uncontrolled, calculated based on engineering judgement	107

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Steel production	3312	Electric arc furnace operations, charging/tapping/stegging	303009	Manganese	7439965	0.049 lb/ton of product	Uncontrolled at roof monitor, calculated based on engineering judgment	107
Steel production	3312	Electric arc furnace operations, melt/refine/charge/tap/slag carbon steel	303009	Manganese	7439965	1.75 lb/ton of product	Uncontrolled, calculated based on engineering judgment	107
Steel production	3312	Electric arc furnace operations, melt/refine/charge/tap/slag carbon steel	303009	Manganese	7439965	0.0015 lb/ton of product	Controlled by DEC plus charging hood to fabric filter, calculated based on engineering judgment	107
Steel production	3312	Electric arc furnace operations, melt/refine/charge/tap/slag alloy steel	303009	Manganese	7439965	0.656 lb/ton of product	Uncontrolled, calculated based on engineering judgment	107
Steel production	3312	Electric arc furnace operations, melt/refine/charge/tap/slag alloy steel	303009	Manganese	7439965	0.0174 lb/ton of product	Controlled by total building evacuation to fabric filter, calculated based on engineering judgment	107
Steel production	3312	Open hearth fugitive emissions	303009	Nickel	7440020	0.00005 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110
Steel production	3312	Basic oxygen process fugitives	303009	Nickel	7440020	0.0001 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110
Steel production	3312	Electric arc furnace fugitive emissions (carbon steel)	303009	Nickel	7440020	0.00054 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110
Steel production	3312	Electric arc furnace fugitive emissions (carbon steel)	303009	Nickel	7440020	0.00011 lb/ton of steel produced	Controlled with hoods and fabric filter, calculated based on source tests	110
Steel production	3312	Electric arc furnace fugitive emissions (alloy steel)	303009	Nickel	7440020	0.0016 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110
Steel production	3312	Electric arc furnace fugitive emissions (alloy steel)	303009	Nickel	7440020	0.00032 lb/ton of steel produced	Controlled with hoods and fabric filter, calculated based on source tests	110
Steel production	3312	Argon-oxygen decarburization vessel: stainless and specialty alloys	303009	Chromium	7440473	0.53 kg/Mg steel produced	Average of 0.43-0.62, as total chromium, after capture, before control	161

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Steel production	3312	Basic oxygen furnace	303009	Vanadium	7440622	0.3 lb/1000 tons steel produced	97% emission control, based on particulate emission factor and V content	56
Steel production	3312	Open hearth furnace	303009	Zinc	7440666	1.3 lb/ton steel produced	Based on controlled particulate emis. factor of 10.2 lb/ton steel produced, w/ zinc content of 12.5%	66
Steel production	3312	Basic oxygen furnace	303009	Zinc	7440666	0.3 lb/ton steel produced	Based on controlled particulate emis. factor of 14 lb/ton steel produced & zinc content of 2.2%	66
Steel production	3312	Electric arc furnace	303009	Zinc	7440666	0.7 lb/ton steel produced	Based on controlled particulate emis. factor of 2.5 lb/ton steel prod. & part. zinc content of 29.6%	66
Steel production	3312	Open hearth furnace	30300901	Nickel	7440020	0.00018 lb/ton of steel produced	Controlled by ESP, calculated based on source tests	110
Steel production	3312	Open hearth furnace	30300901	Vanadium	7440622	5.1 lb/1000 tons steel produced	40% control efficiency, based on particulate emission factor and V content	56
Steel production	3312	Electric arc furnace (alloy steel)	30300904	Nickel	7440020	0.025 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110
Steel production	3312	Electric arc furnace (alloy steel)	30300904	Nickel	7440020	0.00039-0.00025 lb/ton steel produced	Controlled with fabric filter, calculated based on source tests	110
Steel production	3312	Electric arc furnace: stainless and specialty	30300904	Chromium	7440473	1.4 kg/Mg steel produced	Average of 0.8-2.4, total chromium, after capture, before control	161
Steel production	3312	Electric arc furnace: mixed products	30300904	Chromium	7440473	0.34 kg/Mg steel produced	Average of 0.17-0.5, total chromium, after capture, before control	161
Steel production	3312	Electric arc furnace	30300904	Vanadium	7440622	0.008 lb/ton of steel produced	78% emission control, based on particulate emission factor and V content	56
Steel production	3312	Electric arc furnace operations, milking/refining carbon steel	30300908	Manganese	7439965	1.33 lb/ton of product	Uncontrolled, calculated based on engineering judgment	107
Steel production	3312	Electric arc furnace (carbon steel)	30300908	Nickel	7440020	0.0083 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Steel production	3312	Electric arc furnace (carbon steel)	30300908	Nickel	7440020	0.00013-0.00084 lb/ton steel produced	Controlled by fabric filter, calculated based on source tests	110
Steel production	3312	Electric arc furnace: carbon and alloy steel	30300908	Chromium	7440473	0.03 kg/Mg steel produced	Average of 0.015-0.045, as total chromium, after capture, before control	161
Steel production	3312	Top-blown basic oxygen furnace, melting/refining	30300913	Manganese	7439965	0.285 lb/ton of steel	Uncontrolled, calculated based on engineering judgment	107
Steel production	3312	Top-blown basic oxygen furnace, melting/refining	30300913	Manganese	7439965	0.013 lb/ton of steel	Controlled by open hood vented to ESP, calculated based on engineering judgment	107
Steel production	3312	Top-blown basic oxygen furnace, melting/refining	30300913	Manganese	7439965	0.009 lb/ton of steel	Controlled by open hood vented to scrubber, calculated based on engineering judgment	107
Steel production	3312	Basic oxygen process furnace	30300913	Nickel	7440020	0.00018 lb/ton of steel produced	Controlled by scrubber, calculated based on source tests	110
Steel production	3312	Top-blown basic oxygen furnace, melting/refining	30300914	Manganese	7439965	0.00068 lb/ton of steel	Controlled by closed hood vented to scrubber, calculated based on engineering judgment	107
Steel production	3312	Basic oxygen process furnace	30300914	Nickel	7440020	0.00018 lb/ton of steel produced	Controlled by scrubber, calculated based on source tests	110
Steel production	3312	Basic oxygen furnace operations, hot metal transfer	30300915	Manganese	7439965	0.0004 lb/ton of steel	At source, uncontrolled, calculated based on engineering judgment	107
Steel production	3312	Basic oxygen furnace operations, charging	30300916	Manganese	7439965	0.006 lb/ton of steel	At source, uncontrolled, calculated based on engineering judgment	107
Steel production	3312	Basic oxygen furnace operations, tapping	30300917	Manganese	7439965	0.0092 lb/ton of steel	At source, uncontrolled, calculated based on engineering judgment	107
Steel production	3312	Zinc galvanizing kettles	30300936	Zinc	7440066	0.0018 Mg/Mg zinc processed	Based on emissions data obtained from galvanizing plants in the late 1960s	66
Steel production	3312	Electric arc furnace (stainless steel)	30300998	Nickel	7440020	0.3 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Steel production	3312	Electric arc furnace (stainless steel)	30300998	Nickel	7440020	0.003 lb/ton of steel produced	Controlled with fabric filter, calculated based on source tests	110
Steel production	3312	Electric arc furnace fugitive emissions (stainless steel)	30300998	Nickel	7440020	0.036 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110
Steel production	3312	Electric arc furnace fugitive emissions (stainless steel)	30300998	Nickel	7440020	0.0072 lb/ton of steel produced	Controlled with hoods and fabric filter, calculated based on source tests	110
Steel production	3312	Argon oxygen decarburization vessel (stainless steel)	30300998	Nickel	7440020	0.32 lb/ton of steel produced	Uncontrolled, calculated based on source tests	110
Steel production	3312	Argon oxygen decarburization vessel (stainless steel)	30300998	Nickel	7440020	0.064 lb/ton of steel produced	Controlled with fabric filter, calculated based on source tests	110
Sterilization		Retort		Propylene oxide	75569	470 lb/sterilization event	Based on data for a facility using 18,326 lb 90/year, engineering judgment	24
Storage and handling		Entire process		Perchloroethylene	127184	2.3 lb/1000 gal perchloroethylene	Control status and basis uncertain	2
Storage losses at a typical gasoline bulk terminal	2911	Fixed roof, working loss	404001	Benzene	71432	0.2 mg/year tank of gasoline	Based on terminal with 950,000 liters/day and four storage tanks for gasoline	132
Storage losses at a typical gasoline bulk terminal	2911	Fixed roof, breathing loss	404001	Benzene	71432	0.05 mg/year tank of gasoline	Based on terminal with 950,000 liters/day and four storage tanks for gasoline	132
Storage losses at a typical gasoline bulk terminal	2911	External floating roof, working loss	404001	Benzene	71432	(0.46 x 10E-7 g)/Mg/yr, 0 is throughput	Based on a capacity of 36,000 bbls	132
Storage losses at a typical gasoline bulk terminal	2911	Storage loss, primary seal, external floating roof	404001	Benzene	71432	0.05 mg/year/tank of gasoline	Based on a capacity of 36,000 bbls	132
Storage losses at a typical gasoline bulk terminal	2911	Storage loss, secondary metallic shoe seal, external floating roof	404001	Benzene	71432	0.02 mg/year/tank of gasoline	Based on a capacity of 36,000 bbls	132
Styrene-butadiene copolymers - emulsion crumb	2821	Coagulation/blend tanks	301018	Styrene	100425	0.42 kg/Mg polymer produced	Control status unclear	96
Styrene-butadiene copolymers - emulsion crumb	2821	Dryers	301018	Styrene	100425	2.5 kg/Mg polymer produced	Control status unclear	96
Styrene-butadiene copolymers	2821	Monomer removal	301018	Styrene	100425	0.15 kg/Mg polymer	Control status unclear	96

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
- emulsion latex								
Styrene-butadiene copolymers - emulsion latex	2821	Blend tanks	301018	Styrene	100425	0.10 kg/Mg polymer	Control status unclear	96
Styrene-butadiene rubber produc. by emulsion polymerization	2822	Drying		Styrene	100425	0.6 g/kg SBR produced	Uncontrolled, based on industry estimates	81
Styrene-butadiene rubber produc. by emulsion polymerization	2822	Butadiene adsorption		Butadiene, 1,3-	106990	0.1 g/kg SBR produced	Uncontrolled, based on industry estimates	81
Styrene-butadiene rubber produc. by emulsion polymerization	2822	Styrene storage (fugitive)	407036	Styrene	100425	0.4 g/kg SBR produced	Uncontrolled, based on industry estimates	81
Styrene-butadiene rubber produc. by emulsion polymerization	2822	Styrene storage (breathing)	40703613	Styrene	100425	0.02 g/kg SBR produced	Uncontrolled, based on industry estimates	81
Styrene-butadiene rubber produc. by solution polymerization	2822	Styrene storage (breathing)	40703613	Styrene	100425	0.02 g/kg SBR produced	Uncontrolled, based on engineering estimates	81
Styrene-butadiene rubber production	2822	Process vents	301	Butadiene, 1,3-	106990	0.06 kg/Mg SBR produced	Calculated from national emis. & national capacity, represents ave. of control. & uncontrol. sources	83
Styrene-butadiene rubber production	2822	Equipment leaks	301	Butadiene, 1,3-	106990	0.7 kg/Mg SBR produced	Calculated from national emissions and capacity, uncontrolled	83
Styrene-butadiene rubber production	2822	Wastewater	301	Butadiene, 1,3-	106990	0.04 kg/Mg SBR produced	Calculated from national emissions and capacity, uncontrolled	83
Sulfuric acid production - contact process	2819	Entire process - raw material is recovered sulfur	30102201	Sulfuric acid mist	7664939	0.35-0.8 lb/ton acid	Uncontrolled, emission proportional to % oleum in product	97
Sulfuric acid production - contact process	2819	Entire process - dark virgin sulfur	30102201	Sulfuric acid mist	7664939	0.32-0.3 lb/ton acid	Uncontrolled, emission proportional to % oleum in product	97
Sulfuric acid production - contact process	2819	Entire process - sulfide ore	30102201	Sulfuric acid mist	7664939	1.2-7.4 lb/ton acid	Uncontrolled, emission proportional to % oleum in product	97
Sulfuric acid production - contact process	2819	Entire process - spent acid	30102201	Sulfuric acid mist	7664939	2.2-2.4 lb/ton acid	Uncontrolled, emission proportional to % oleum in product	97
Sulfuric acid production - contact process	2819	Entire process - bright	30102201	Sulfuric acid mist	7664939	1.7 lb/ton acid	Uncontrolled	97

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
contact process		virgin sulfur						
Superphosphate fertilizer application	0711	Application process	302	Cadmium	7440439	1 x 10E-4 g/kg fertilizer applied		38, 41
Suspension polyvinyl chloride production	2821	Fugitives	30101801	Vinyl chloride	75014	1.50 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Suspension polyvinyl chloride production	2821	Reactor opening loss	30101801	Vinyl chloride	75014	0.14 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Suspension polyvinyl chloride production	2821	Stripper loss	30101801	Vinyl chloride	75014	0.32 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Suspension polyvinyl chloride production	2821	Monomer recovery	30101801	Vinyl chloride	75014	0.48 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Suspension polyvinyl chloride production	2821	Slurry blend tank	30101801	Vinyl chloride	75014	0.42 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Suspension polyvinyl chloride production	2821	Centrifuge vent	30101801	Vinyl chloride	75014	0.13 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Suspension polyvinyl chloride production	2821	Reactor safety valve vents	30101801	Vinyl chloride	75014	0.20 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Suspension polyvinyl chloride production	2821	Process water	30101801	Vinyl chloride	75014	0.025 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Suspension polyvinyl chloride production	2821	Area emissions - dryer, silo, bagger, loading	30101801	Vinyl chloride	75014	0.70 kg VC monomer/100 kg PVC prod.	Industry average, control level at existing plants unknown, variable	26
Symmetrical tetrachloropyridine production	2899	All sources		Carbon tetrachloride	56235	68 Mg/yr	Two plants in U.S., some control	134
Synthetic fibers - viscose rayon	2824	General emissions	30102501	Carbon disulfide	75150	55 lb/ton fibers	Uncontrolled, low quality factor	97
Synthetic fibers - viscose rayon	2824	General emissions	30102501	Hydrogen sulfide	7783064	6 lb/ton fibers	Uncontrolled, low quality factor	97
Synthetic manganese production	2819	Drying and grinding	301070	Manganese	7439945	8.9 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Synthetic manganese production	2819	Drying and grinding	301070	Manganese	7439945	0.009 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Synthetic manganese production	2819	Roasting	301070	Manganese	7439965	110 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Synthetic manganese production	2819	Roasting	301070	Manganese	7439965	0.22 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Synthetic manganese production	2819	Packaging and handling	301070	Manganese	7439965	5.4 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Synthetic manganese production	2819	Packaging and handling	301070	Manganese	7439965	0.0054 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Synthetic manganese production	3339	Drying and grinding	303	Manganese	7439965	8.9 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Synthetic manganese production	3339	Drying and grinding	303	Manganese	7439965	0.009 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Synthetic manganese production	3339	Roasting	303	Manganese	7439965	110 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Synthetic manganese production	3339	Roasting	303	Manganese	7439965	0.22 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Synthetic manganese production	3339	Packaging and handling	303	Manganese	7439965	5.4 lb/ton of material processed	Uncontrolled, calculated based on engineering judgement	107
Synthetic manganese production	3339	Packaging and handling	303	Manganese	7439965	0.0054 lb/ton of material processed	Controlled by fabric filter, calculated based on engineering judgement	107
Tank truck cleaning	7699	Entire process		Propylene glycol	1079982	0.002 lb/truck	Emission measurement	97
Tank truck cleaning	7699	Entire process		Phenol	108952	0.012 lb/truck	Emission measurement	97
Tank truck cleaning	7699	Entire process		Perchloroethylene	127184	0.474 lb/truck	Emission measurement	97
Tank truck cleaning	7699	Entire process		Methyl methacrylate	80626	0.071 lb/truck	Emission measurement	97
Tank truck cleaning	7699	Entire process	490004	Acetone	67641	0.666 lb/truck	Emission measurement	97
Terephthalic acid production	2869	Storage	301	Xylene, p-	106423	1.1 x 10E-4 lb/lb xylene used	Based on site visit data	13
Terephthalic acid production	2869	Fugitive	301031	Xylene, p-	106423	7.0 x 10E-5 lb/lb xylene used	Based on site visit data	13

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Terephthalic acid production	2869	Process - general	30103107	Xylene, p-	106423	2.54×10^{-3} lb/lb xylene used	Based on site visit data	13
Tetraethyl lead production	2869	Process	301042	Ethyl chloride	75003	0.041 kg/kg tetraethyl lead produced	Based on Texas A&M Emission Inventory data for one source	65
Tetraethyl lead production	2869	Fugitive	301042	Ethyl chloride	75003	0.000075 kg/kg of tetraethyl lead prod.	Based on one facility's response to a 1975 emission inventory questionnaire	65
Thinning solvent		Xylene	40200924	Xylene	1330207	1.0 lb/lb xylene used	Engineering estimate, assume all xylene used is eventually released to the atmosphere	13
Toluene diisocyanate production	2865	General	30118101	Toluene	108883	7.7×10^{-4} lb/lb used	Engineering estimate	13
Toluene diisocyanate production	2865	Process vent	30118101	Phosgene	75445	0.75 lb/1006 lb phosgene produced	Hypothetical site, value for TDI prod.; add value for phosgene to get total phosgene-TDI plant	121
Toluene diisocyanate production	2865	Process upset	30118101	Phosgene	75445	0.00025 lb/ton phosgene produced		121
Toluene diisocyanate production	2865	Process - general	30118101	Phosgene	75445	6.0×10^{-6} lb/lb produced	Derived from State air emission files	13
Toluene diisocyanate production	2865	Sulfuric acid concentrator	30118102	Sulfuric acid	7664939	0.009 g/kg TDI produced	Calculated from 0.102 (wt.) in emission stream and 5 g VOC/kg TDI	153
Toluene diisocyanate production	2865	Fugitive	30118180	Toluene	108883	1.9×10^{-4} lb/lb used	Engineering estimate	13
Toluene diisocyanate production	2865	Fugitives	30118180	Phosgene	75445	13.2 lb/1006 lb phosgene produced	Hypothetical site, upper end of range, lower value is 0.3 lb/1006 lb	121
Toluene diisocyanate production	2865	Storage	407064	Toluene	108883	3.2×10^{-4} lb/lb used	Engineering estimate	13
Toluene production	2865	General	30125805	Toluene	108883	1.7×10^{-4} lb/lb produced	Average of four values given for four different processes	13
Toluene production	2865	Storage	407036	Toluene	108883	4.65×10^{-4} lb/lb produced	Average of four values given for four different processes	13
Toluene production via catalytic reformate	2011	Cracking unit	306002	Toluene	108883	2.0×10^{-5} lb/lb produced		13

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Transport in tank trucks	421	Tank truck loaded with product - typical losses	406001	Ethylene dibromide	106934	5.75×10^{-6} mg/liter transported	Calculated from gasoline vapor estimates	50
Transport in tank trucks	421	Tank truck loaded with product - extreme losses	406001	Ethylene dibromide	106934	5.75×10^{-5} mg/liter transported	Calculated from gasoline vapor estimates	50
Transport in tank trucks	421	Tank truck unloaded - typical losses	406001	Ethylene dibromide	106934	7.49×10^{-5} mg/liter transported	Calculated from gasoline vapor estimates	50
Transport in tank trucks	421	Tank truck unloaded - extreme losses	406001	Ethylene dibromide	106934	2.53×10^{-4} mg/liter transported	Calculated from gasoline vapor estimates	50
Transport in tank trucks	421	Tank truck loaded with product - typical losses	406001	Ethylene dichloride	107062	5.88×10^{-5} mg/liter transported	Calculated from gasoline vapors estimates	50
Transport in tank trucks	421	Tank truck loaded with product - extreme losses	406001	Ethylene dichloride	107062	5.88×10^{-4} mg/liter transported	Calculated from gasoline vapors estimates	50
Transport in tank trucks	421	Tank truck unloaded - typical losses	406001	Ethylene dichloride	107062	7.66×10^{-4} mg/liter transported	Calculated from gasoline vapors estimates	50
Transport in tank trucks	421	Tank truck unloaded - extreme losses	406001	Ethylene dichloride	107062	2.59×10^{-3} mg/liter transported	Calculated from gasoline vapors estimates	50
Transport in tank trucks	421	Tank trucks loaded with product - typical losses	406001	Gasoline vapor	8006619	0.5 mg/liter transported	Average of range determined from engineering estimate, RVP = 10 psia	97
Transport in tank trucks	421	Tank trucks loaded with product - extreme losses	406001	Gasoline vapor	8006619	5.0 mg/liter transported	Average of range determined from engineering estimate, RVP = 10 psia	97
Transport in tank trucks	421	Tank trucks unloaded - typical losses	406001	Gasoline vapor	8006619	6.5 mg/liter transported	Average of range determined from engineering estimate, RVP = 10 psia	97
Transport in tank trucks	421	Tank trucks unloaded - extreme losses	406001	Gasoline vapor	8006619	27.0 mg/liter transported	Average of range determined from engineering estimate, RVP = 10 psia	97
Trichloroethylene production	2869	Entire process	30112530	Ethylene dichloride	107062	5 kg/kg 1:1 produced	Controlled, aggregate estimate based on national emissions and production estimates	51
Trichloroethylene production	2869	Process - general	30112530	Trichloroethylene	79016	5.12×10^{-4} lb/lb produced	Derived from State air emission files	13
Trichloroethylene production	2869	Storage	407060	Trichloroethylene	79016	8.1×10^{-4} lb/lb produced	Derived from State air emission files	13
Trichloroethylene production	2869	Fugitive	30112534	Trichloroethylene	79016	7.5×10^{-4} lb/lb produced	Engineering estimate	13

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Trichloroethylene production by oxyhydrochlorination process	2869	Absorption	30112530	Ethylene dichloride	107062	13.0 g/kg produced	Control unclear, based on mass balance and testing	95
Trichloroethylene production by oxyhydrochlorination process	2869	Absorption	30112530	Carbon tetrachloride	56235	13.0 g/kg produced	Control unclear, based on mass balance and testing	95
Trichloroethylene production by oxyhydrochlorination process	2869	Absorption	30112530	Trichloroethylene	79016	8.5 g/kg produced	Control unclear, based on mass balance and testing	95
Trimethylolpropane production	2869	Process	301250	Formaldehyde	50000	0.074 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or the types of controls involved	106
Trimethylolpropane production	2869	Formaldehyde storage	301250	Formaldehyde	50000	0.01 kg/Mg of 37% formaldehyde used	No information was available on the basis of these estimates or the types of controls involved	106
Triple superphosphate production - run of pile	2574	Cone mixer, den and curing building	30102905	Fluoride	16984468	0.2 lb/ton P205	Wet scrubber (97%), based on test data	97
Unsaturated polyester resin	2821	Thinning/blending	301018	Styrene	100425	0.08 kg/Mg resin	Control status unclear	96
Unsaturated polyester resin	2821	Product storage	301018	Styrene	100425	0.05 kg/Mg resin	Control status unclear	96
Unsaturated polyester resin	2821	Styrene storage	301018	Styrene	100425	0.02 kg/Mg resin	Control status unclear	96
Uranium mining	1094	Ore loading, dumping		Radionuclides		75 Ci Rn-222/g ore and sub-ore mined	Rough est. for avg lrg underground mine w/ ore grade = 0.1% triuranium octoxide	37
Uranium mining	1094	Sub-ore loading, dumping		Radionuclides		25 Ci Rn-222/g ore and sub-ore mined	Rough est. for avg lrg underground mine w/ ore grade = 0.1% triuranium octoxide	37
Uranium mining	1094	Reloading ore from stockpile		Radionuclides		75 Ci Rn-222/g ore and sub-ore mined	Rough est. for avg lrg underground mine w/ ore grade = 0.1% triuranium octoxide	37
Uranium mining	1094	Ore stockpile exhalation		Radionuclides		265 Ci Rn-222/g ore and sub-ore mined	Rough est. for avg lrg underground mine w/ ore grade = 0.1% triuranium octoxide	37
Uranium mining	1094	Sub-ore stockpile exhalation		Radionuclides		1600 Ci Rn-222/g ore and sub-ore mined	Rough est. for avg lrg underground mine w/ ore grade = 0.1% triuranium octoxide	37

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Uranium mining	1094	Waste rock pile subleatation		Radionuclides		140 Ci Rn-222/g waste rock mined	triuranium octoxide Rough est., for avg lrg underground mine w/ ore grade = 0.1% triuranium octoxide	37
Uranium mining	1094	Waste rock loading, dumping		Radionuclides		0 Ci Rn-222/g waste rock produced	Rough est., for avg lrg underground mine w/ ore grade = 0.1% triuranium octoxide	37
Uranium mining	1094	Underground uranium mines	30504010	Radionuclides		0.004 - 0.19 Ci Rn-222/ton ore processed		35
Urea manufacturing	2873	Evaporator	301040	Ammonia	7664417	1.73 g/kg urea produced	Controlled by wet scrubber, test data for one plant	137
Urea manufacturing	2873	Prill tower	30104003	Ammonia	7664417	0.40 g/kg urea produced	Uncontrolled, data from three plants	137
Urea manufacturing	2873	Granulation	30104004	Ammonia	7664417	0.25 g/kg urea produced	Controlled by scrubber, test data	137
Urea-formaldehyde resin production	2821	Process	30101832	Formaldehyde	50000	0.15-1.5 kg/Mg of 37% formaldehyde used	Uncontrolled, basis unclear	106
Urea-formaldehyde resin production	2821	Formaldehyde storage	30101832	Formaldehyde	50000	0.03-0.2 kg/Mg of 37% formaldehyde used	Uncontrolled, basis unclear	106
Use as a solvent		General	401	Methyl chloroform	71556	1.0 lb/lb used	Assume all is eventually released to atmosphere	13
Use as a solvent	28	General	401	Nitrobenzene	98953	1.0 lb/lb used	Assume all is eventually lost to atmosphere	13
Use as a solvent in paints		Coating application	40200101	Toluene	108883	1.0 lb/lb used	Assume all toluene is eventually released to atmosphere	13
Use as a thinning solvent		Toluene	40200922	Toluene	108883	1.0 lb/lb used	Assume all toluene is eventually released to atmosphere	13
Use as paint and varnish remover		General	401	Methylene chloride	75092	1.0 lb/lb used	Assume all is eventually released to atmosphere	13
Use in plastics processing	2821	General	301018	Methylene chloride	75092	1.0 lb/lb used	Assume all is eventually released to atmosphere	13
Use of aerosol products		Entire process		Perchloroethylene	127164	1 kg/kg of PCE in product applied	Uncontrolled, based on engineering judgement	68

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Use of aerosol products		Entire process		Methylene chloride	75092	1 kg/kg MC contained in product applied	Uncontrolled, based on engineering judgment	69
Use of automotive products		End use		Xylene	1330207	1 kg/kg xylene consumed	Engineering judgment	77
Use of dental preparations	8021	Handling losses		Mercury	7439976	10 kg/1083 kg of kg handled	Control status unspecified, based on engineering judgment	113
Use of dielectric fluid in electrical apparatus	36	Fugitives	313	Trichlorobenzene, 1,2,4-	120821	0.116 lb/ton fluid used	Based on material balance	48
Vehicle refueling	5541	Vapor loss	40600301	Ethyl benzene	100414	0.009 g/gal of gas pumped	Listed as emission rate for ethylbenzene/2,3-dimethylheptene	4
Vehicle refueling	5541	Vapor loss	40600301	Butadiene, 1,3-	106990	1.785 g/gal of gas pumped	Listed as n-butene/1,3-butadiene emission rate	4
Vehicle refueling	5541	Vapor loss	40600301	Toluene	108883	0.080 g/gal of gas pumped	Listed as toluene/2,3-dimethylhexane emission rate	4
Vehicle refueling	5541	Vapor loss	40600301	Propylene	115071	0.0 g/gal of gas pumped	Listed as propylene/propane emission rate	4
Vehicle refueling	5541	Vapor loss	40600301	Xylene	1330207	0.022 g/gal of gas pumped	For p- and m-xylene	4
Vehicle refueling	5541	Vapor loss	40600301	Xylene	1330207	0.016 g/gal of gas pumped	Listed as emission rate for o-xylene and/or unknown C9 paraffins	4
Vehicle refueling	5541	Vapor loss	40600301	Benzene	71432	0.029 g/gal of gas pumped		4
Vehicle tire wear		Tire		Cadmium	7440439	1.07 x 10E-8 - 1.07 x 10E-5 lb/mile driven	Based on three emission factors in the literature	41
Vinyl chloride monomer production	2869	Heavy ends from distillation column	30112550	Ethylene dichloride	107062	0.6-0.8 kg/Mg of vinyl chloride produced	Uncontrolled, basis unspecified	51
Vinyl chloride monomer production	2869	Heavy ends from distillation column	30112550	Ethylene dichloride	107062	<0.016 kg/Mg of vinyl chloride produced	Controlled by thermal incineration, calculated based on engineering judgment	51
Vinyl toluene production	2865	Process - general	301	Toluene	108883	5.5 x 10E-4 lb/lb used	Engineering estimate	13
Vinyl toluene production	2865	Fugitive	301	Toluene	108883	1.5 x 10E-4 lb/lb used	Engineering estimate	13
Vinyl toluene production	2865	Storage	407036	Toluene	108883	3.0 x 10E-4 lb/lb used	Engineering estimate	13

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Vinyl/asbestos tile manufacturing	3292	Entire process		Asbestos	1332214	5.40 kg/ton asbestos consumed	Calculated average uncontrolled factor, calculated range 0.12-136.5	100
Vinyl/asbestos tile manufacturing	3292	Entire process		Asbestos	1332214	0.004 kg/ton asbestos consumed	Calculated average controlled factor, calculated range 1.2 x 10 ⁻⁵ to 0.1%	100
Vinylidene chloride copolymer fabric. (cellulose coating)	2824	Includes poly. stor. vents, poly. mix. & blend. vents, & finis. poly. dry.	301125	Vinylidene chloride	75354	10-120 g/Mg copolymer produced	Based on counts of pumps, valves, and compressors and the average VOC wt. fraction in the streams	165
Vinylidene chloride copolymer fabric. (for extrusion)	2824	Includes poly. stor. vents, poly. mix. & blend. vents, & finis. poly. dry.	301125	Vinylidene chloride	75354	2-25 g/Mg copolymer produced	Based on counts of pumps, valves, and compressors and the average VOC wt. fraction in the streams	165
Vinylidene chloride copolymer fabric. (for latex coating)	2824	Includes poly. stor. vents, poly. mix. & blend. vents, & finis. poly. dry.	301125	Vinylidene chloride	75354	50-1500 g/Mg copolymer produced	Based on counts of pumps, valves, and compressors and the average VOC wt. fraction in the streams	165
Vinylidene chloride production	2869	Storage and handling	301125	Vinylidene chloride	75354	0.056 kg/Mg VOC produced	Controlled, unknown (typical controls are pressurized tank, refrigerated condenser)	165
Vinylidene chloride production	2869	Entire process	30112551	Ethylene dichloride	107062	5.7 kg/Mg vinylidene chloride produced	Controlled, aggregate estimate based on national emissions and production estimates	51
Vinylidene chloride production	2869	Reactor vent	30112552	Vinylidene chloride	75354	6.2 kg/Mg VOC produced	Uncontrolled, emis. fac. based on published data from indiv. plants & general processing techniques	165
Vinylidene chloride production	2869	Reactor vent	30112552	Vinylidene chloride	75354	<0.12 kg/Mg VOC produced	Controlled (incinerator), 98+% reduction	165
Vinylidene chloride production	2869	Distillation vents	30112553	Vinylidene chloride	75354	0.7 kg/Mg VOC produced	Uncontrolled	165
Vinylidene chloride production	2869	Distillation vents	30112553	Vinylidene chloride	75354	0.070 kg/Mg VOC produced	Controlled, aqueous scrubber or refrigerated condenser (90% reduction)	165
Vinylidene chloride production	2869	Process fugitive emissions	30112555	Vinylidene chloride	75354	0.96 kg/hr	Uncontrolled (independent of plant capacity)	165
Vinylidene chloride production	2869	Process fugitive emissions	30112555	Vinylidene chloride	75354	0.76 kg/hr	Quarterly inspection and maintenance (21%)	165
Vinylidene chloride production	2869	Process fugitive emissions	30112555	Vinylidene chloride	75354	0.70 kg/hr	Monthly inspection and maintenance (25%)	165

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Vinylidene chloride production	2869	Process fugitive emissions	30112555	Vinylidene chloride	75354	0.12 kg/hr	Monthly inspection & maintenance, double seals on pumps & rupture disks on relief valves, 80% reduc.	165
Waste incineration		Lubricating oil	1	Nickel	7440020	0.07 lb Ni oxides/1000 gal lubric. oil	Control status unclear, based on source tests	144
Waste oil combustion		Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	Toluene	108883	0.036 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, assumes 97% DRE	55
Waste oil combustion		Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	Perchloroethylene	127184	0.036 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, assumes 97% DRE	55
Waste oil combustion		Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	Polychlorinated biphenyls	1336363	0.001 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, assumes 97% DRE	55
Waste oil combustion		Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	Carbon tetrachloride	56235	0.030 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, assumes 97% DRE	55
Waste oil combustion		Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	Benzene	71432	0.005 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, assumes 97% DRE	55
Waste oil combustion		Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	Methyl chloroform	71556	0.039 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, assumes 97% DRE	55
Waste oil combustion		Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	Arsenic	7440382	0.012 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, variable	55
Waste oil combustion		Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	Barium	7440393	0.364 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, variable	55
Waste oil combustion		Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	Cadmium	7440439	0.003 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, variable	55
Waste oil combustion		Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	Chromium	7440473	0.021 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, variable	55

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Waste oil combustion		Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	Zinc	7440666	0.750 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, variable	55
Waste oil combustion		Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	Hydrogen chloride	7647010	6.15 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement	55
Waste oil combustion		Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	Trichloroethylene	79016	0.031 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, assumes 97% DRE	55
Waste oil combustion		Waste oil-fired boilers (<150 million Btu/h) or space heaters	1	Naphthalene	91203	0.018 g/liter oil burned	Uncontrolled, based on emissions data and engineering judgement, assumes 97% DRE	55
Wastewater treatment	2824	Wastewater	301125	Vinylidene chloride	75354	0.98 g/g VOC in wastewater feed	Based on 98% evaporation rate	165
Wastewater treatment	4953	POTW	50100701	POM		0.00-0.999 Mg/Mg of POM in influent	Depends on comp., based on emis. model. for hypoth. POTW, repr. ave. POTW treat. indus. wastewater	60, 61
Wastewater treatment	4953	POTW	50100701	Ethyl benzene	100414	0.56 Mg/Mg ethyl benzene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Styrene	100425	0.50 Mg/Mg styrene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Cresol, p-	106445	0.0009 Mg/Mg p-cresol in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Dichlorobenzene, 1,4-	106467	0.39 Mg/Mg 1,4-dichlorobenz. in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	60
Wastewater treatment	4953	POTW	50100701	Ethylene dibromide	106934	0.74 Mg/Mg of eth. dibromide in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Wastewater treatment	4953	POTW	50100701	Butadiene, 1,3-	106990	0.85 Mg/Mg 1,3-butadiene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	108
Wastewater treatment	4953	POTW	50100701	Acrolein	107028	0.09 Mg/Mg of acrolein in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Ethylene dichloride	107062	0.36 Mg/Mg ethylene dichlor. in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Acrylonitrile	107131	0.12 Mg/Mg acrylonitrile in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	60
Wastewater treatment	4953	POTW	50100701	Toluene	108883	0.58 Mg/Mg toluene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Chlorobenzene	108907	0.52 Mg/Mg of chlorobenzene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Phenol	108952	0.0009 Mg/Mg phenol in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Hexachlorobenzene	118741	0.26 Mg/Mg hexachlorobenz. in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	60
Wastewater treatment	4953	POTW	50100701	Trichlorobenzene, 1,2,4-	120821	0.37 Mg/Mg 1,2,4-trichlorob. in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Dichlorophenol, 2,4-	120832	0.009 Mg/Mg 2,4-dichlorophen. in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	60

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SEC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Wastewater treatment	4953	POTW	50100701	Perchloroethylene	127184	0.70 kg/Mg perchloroethylene in influent	wastewater Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Dibenzofuran	132649	0.97 kg/Mg dibenzofuran in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	60
Wastewater treatment	4953	POTW	50100701	Xylene	1330207	0.55 kg/Mg total xylenes in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Dichlorobenzene, 1,3-	541751	0.50 kg/Mg 1,3-dichlorobenz. in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	60
Wastewater treatment	4953	POTW	50100701	Carbon tetrachloride	56235	0.71 kg/Mg of carbon tet. in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Aniline	62533	0.006 kg/Mg of aniline in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Chloroform	67663	0.52 kg/Mg of chloroform in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Dimethyl formamide	68122	0.04 kg/Mg DMF in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Benzene	71432	0.57 kg/Mg of benzene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Methyl chloroform	71556	0.61 kg/Mg methyl chloroform	Based on emis. modeling for	59

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Wastewater treatment	4953	POTW	50100701	Ethyl chloride	75003	In influent	hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Vinyl chloride	75014	0.87 Mg/Mg of ethyl chloride in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Methylene chloride	75092	0.81 Mg/Mg vinyl chloride in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Trichloroethylene	79016	0.52 Mg/Mg methylene chlor. in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Pentachlorophenol	87865	0.62 Mg/Mg trichloroethylene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Naphthalene	91203	0.003 Mg/Mg pentachlorophen. in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Creosol, o-	95487	0.16 Mg/Mg naphthalene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Dichlorobenzene, 1,2-	95501	0.006 Mg/Mg o-cresol in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Chlorophenol, 2-	95578	0.41 Mg/Mg 1,2-dichlorobenz. in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	59
Wastewater treatment	4953	POTW	50100701	Chlorophenol, 2-	95578	0.03 Mg/Mg 2-chlorophenol in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	60

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Wastewater treatment	4953	POTW	50100701	Nitrobenzene	98953	0.02 mg/Mg nitrobenzene in influent	Based on emis. modeling for hypoth. POTW, represents average POTW that treats industrial wastewater	60
Wire making	2084	Fermentation	30201105	Ethanol	64175	1.06 lb/1000 gal fermented	Uncontrolled, for a 52 degree Fahrenheit tank	97
Wire making	2084	Fermentation	30201106	Ethanol	64175	4.79 lb/1000 gal fermented	Uncontrolled, for a 80 degree Fahrenheit tank	97
Wire reclamation incineration	49	Incinerator stack	5	Tetrachlorodibenzo-p-dioxins		0.41 ng/g	One facility tested	119
Wire reclamation incineration	49	Bottom ash	5	Tetrachlorodibenzofurans		11.6 ng/g	One facility tested	119
Wire reclamation incineration	49	Stack - fly ash	5	Tetrachlorodibenzo-p-dioxins		0.41 ng/g	One study, three furnaces	119
Wire reclamation incineration	49	Stack - fly ash	5	Tetrachlorodibenzofurans		11.6 ng/g	One study, three furnaces	119
Wire reclamation incineration	49	Furnace - ash	5	Tetrachlorodibenzo-p-dioxins		0.56 ng/g	One study, three furnaces	119
Wire reclamation incineration	49	Furnace - ash	5	Tetrachlorodibenzofurans		0.75 ng/g	One study, three furnaces	119
Wire reclamation incineration	49	Stack	5	Tetrachlorodibenzo-p-dioxins		1.2 ng/dscm @ 3% O ₂	Estimated value from stack test results, does not include 2,3,7,8-isomer	115
Wire reclamation incineration	49	Stack	5	Pentachlorodibenzo-p-dioxins		2.2 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Wire reclamation incineration	49	Stack	5	Hexachlorodibenzo-p-dioxins		14 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Wire reclamation incineration	49	Stack	5	Heptachlorodibenzo-p-dioxins		130 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Wire reclamation incineration	49	Stack	5	Octachlorodibenzo-p-dioxins		290 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Wire reclamation incineration	49	Stack	5	Tetrachlorodibenzofurans		29 ng/dscm @ 3% O ₂	Estimated value from stack test results, does not include 2,3,7,8-isomer	115
Wire reclamation incineration	49	Stack	5	Pentachlorodibenzofurans		22 ng/dscm @ 3% O ₂	Estimated value from stack test results	115

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Wire reclamation incineration	49	Stack	5	Hexachlorodibenzofurane		65 ng/dscm @ 3% O ₂	results	115
Wire reclamation incineration	49	Stack	5	Heptachlorodibenzofurane		230 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Wire reclamation incineration	49	Stack	5	Octachlorodibenzofurane		230 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Wire reclamation incineration	49	Stack - fly ash	5	Tetrachlorodibenzop-d-dioxins		0.41 ng/g	One site tested, homolog data given in refer., isomer data may be avail. from indiv. references	116
Wire reclamation incineration	49	Stack - fly ash	5	Tetrachlorodibenzofurane		11.6 ng/g	One site tested, homolog data given in refer., isomer data may be avail. from indiv. references	116
Wire reclamation incineration	49	Stack	5	Tetrachlorodibenzop-d-dioxins, 2,3,7,8-	1746016	0.07 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Wire reclamation incineration	49	Stack	5	Tetrachlorodibenzofuran, 2,3,7,8-	51207319	0.40 ng/dscm @ 3% O ₂	Estimated value from stack test results	115
Wood combustion		Industrial	102009	Formaldehyde	50000	0.48 lb/ton	Uncontrolled, based on emission factor for residential woodstoves	94
Wood combustion		Industrial	102009	Manganese	7439965	1.0 lb/ton wood burned	Control status unspecified, based on emission factor for residential woodstoves	94
Wood combustion		Industrial/commercial spreader stoker, bark	10200901	PM		0.014 pp/d heat input	Cyclones, represents both gaseous and particulate PM	114
Wood combustion		Industrial/commercial hot water boiler, hardwood chips	10200901	PM		1.9 mg/kg dry fuel burned	Multicyclone, represents both gaseous and particulate PM	114
Wood combustion		Industrial stick burner boiler, white oak and mixed logs, industr/commerc	10200903	PM		78 mg/kg wood burned	Uncontrolled, ave. of 3 values ranging 65-87 mg/kg, represents both gaseous and particulate PM	114
Wood combustion		Commercial	103009	Formaldehyde	50000	0.48 lb/ton	Uncontrolled, based on emission factor for residential woodstoves	94
Wood combustion		Commercial	103009	Manganese	7439965	1.0 lb/ton wood burned	Control status unspecified, based on emission factor for residential woodstoves	94

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Wood combustion	49	Stack, industrial wood-fired boiler	5	Tetrachlorodibenzo-p-dioxin		47 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing, does not include 2,3,7,8-isomer	115
Wood combustion	49	Stack, industrial wood-fired boiler	5	Pentachlorodibenzo-p-dioxin		48 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
Wood combustion	49	Stack, industrial wood-fired boiler	5	Hexachlorodibenzo-p-dioxin		49 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
Wood combustion	49	Stack, industrial wood-fired boiler	5	Heptachlorodibenzo-p-dioxin		39 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
Wood combustion	49	Stack, industrial wood-fired boiler	5	Octachlorodibenzo-p-dioxin		11 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
Wood combustion	49	Stack, industrial wood-fired boiler	5	Tetrachlorodibenzofurane		37 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing, does not include 2,3,7,8-isomer	115
Wood combustion	49	Stack, industrial wood-fired boiler	5	Pentachlorodibenzofurane		23 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
Wood combustion	49	Stack, industrial wood-fired boiler	5	Hexachlorodibenzofurane		15 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
Wood combustion	49	Stack, industrial wood-fired boiler	5	Heptachlorodibenzofurane		6.5 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
Wood combustion	49	Stack, industrial wood-fired boiler	5	Octachlorodibenzofurane		0.92 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
Wood combustion	49	Stack, industrial wood-fired boiler	5	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	1746016	0.28 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
Wood combustion	49	Stack, industrial wood-fired boiler	5	Tetrachlorodibenzofuran, 2,3,7,8-	51207319	1.8 ng/dscm @ 3% O ₂	Salt-laden wood, Tier 4 stack testing	115
Wood combustion, industrial		Horizontal return tube boiler, green ash	10200903	POM		2.3 mg/kg dry wood burned	Uncontrolled, represents both gaseous and particulate POM, average of 3 values (1.6-3.1)	116
Wood combustion, industrial		Watertube, dry oak	10200903	POM		2.2 mg/kg dry wood burned	Multiclone, represents both gaseous and particulate POM (average of 1.16, 3.32 mg/kg)	116
Wood combustion, industrial		Watertube, green sawdust	10200903	POM		0.83 mg/kg dry wood burned	Multiclone, represents both	116

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Wood combustion, industrial		Horizontal return tube, dry herndood	10200903	PM		0.07 mg/kg dry wood burned	gaseous and particulate PM, average of 0.86, 0.79 mg/kg	114
Wood combustion, industrial		Underfeed stoker, dry herndood	10200903	PM		3.03 mg/kg dry wood burned	Multicyclone, represents both gaseous and particulate PM, average of 0.12, 0.02 mg/kg	114
Wood combustion, industrial		Horizontal return tube, dry herndood	10200903	PM		0.7 mg/kg dry wood burned	Multicyclone, represents both gaseous and particulate PM, average of 2.28-3.47 mg/kg	114
Wood combustion, industrial		Horizontal return tube, green pine/sawdust/bark	10200903	PM		0.64 mg/kg dry wood burned	Uncontrolled, represents both gaseous and particulate PM, average of 3, 0.22-0.96 mg/kg	114
Wood combustion, industrial		Fluidized bed, green bark	10200903	PM		1.15 mg/kg dry wood burned	Uncontrolled, represents gaseous & particulate PM, ref. also lists 4.23 mg/kg for same boiler/fuel	114
Wood combustion, residential		Fluidized bed furnace, pine wood chips		PM		151.8 mg/kg fuel burned	Multicyclone, represents both gaseous and particulate PM, average of 3 (0.70-1.55 mg/kg)	114
Wood combustion, residential		Fluidized bed furnace, pine wood chips		PM		303.7 mg/kg fuel burned	Baghouse, represents both gaseous and particulate PM, average of 2 values	114
Wood combustion, residential		Fireplace		PM		32.5 mg/kg fuel burned	Uncontrolled, represents both gaseous and particulate PM, average of 3 values	114
Wood combustion, residential		Fireplace		PM		0.019 mg/kg fuel burned	Uncontrolled, represents only particulate PM, average of 3 values	114
Wood combustion, residential		Baffled woodstove		PM		291.8 mg/kg fuel burned	Uncontrolled, represents both gaseous and particulate emissions, average of 2 values	114
Wood combustion, residential		Nonbaffled woodstove		PM		196.1 mg/kg fuel burned	Uncontrolled, represents both gaseous and particulate PM, average of 4 values	114
Wood combustion, residential		Nonbaffled catalytic woodstove		PM		47.2 mg/kg fuel burned	Uncontrolled, represents both	114

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Wood combustion, residential		Nonbaffled woodstove with add-on catalytic combustor		PM		201.7 mg/kg fuel burned	gaseous and particulate PM, but all were found in gaseous phase	116
Wood combustion, residential		Baffled catalytic woodstove		PM		163.2 mg/kg fuel burned	Uncontrolled, represents both gaseous and particulate PM, but all were found in gaseous phase	116
Wood combustion, residential		Woodstove with secondary combustion		PM		76.7 mg/kg fuel burned	Uncontrolled, represents both gaseous and particulate PM, but all were found in gaseous phase	116
Wood combustion, residential		Small airtight woodstoves, birch wood		PM		20.9 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, birch wood		PM		20.1 mg/kg dry fuel burned	Starved air conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, spruce wood		PM		2.6 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, spruce wood		PM		32.3 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Wood combustion, residential		Woodstove or fireplace		Phenols		2.0 lb/ton wood burned	Uncontrolled	94
Wood combustion, residential		Fireplace/woodstove		Acrolein	107028	0.06 g/kg wood burned		160
Wood combustion, residential		Small airtight woodstoves, birch wood		Toluene	100663	16.7 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, birch wood		Toluene	100663	2273 mg/kg dry fuel burned	Starved air conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, spruce wood		Toluene	100663	366 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Wood combustion, residential		Woodstove		Propionaldehyde	121366	0.15 g/kg wood	Uncontrolled, average emission factor based on source tests	58
Wood combustion, residential		Woodstove		Butyraldehyde	123728	0.67 g/kg wood burned	Uncontrolled, average emission factor based on source tests	58
Wood combustion, residential		Fireplace		Butyraldehyde	123728	0.2 g/kg wood burned	Uncontrolled, average emission factor based on source tests	58

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Wood combustion, residential		Woodstoves		Formaldehyde	50000	0.48 lb/ton of wood burned	Uncontrolled, based on source test	58
Wood combustion, residential		Fireplaces		Formaldehyde	50000	3.0 lb/ton of wood burned	Uncontrolled, based on source test	58
Wood combustion, residential		Small airtight woodstoves, birch wood		Formaldehyde	50000	57.8 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, birch wood		Formaldehyde	50000	1722 mg/kg dry fuel burned	Starved air conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, spruce wood		Formaldehyde	50000	41.4 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, spruce wood		Formaldehyde	50000	255 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, birch wood		Benz(a)pyrene	50328	0.56 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, birch wood		Benz(a)pyrene	50328	0.26 mg/kg dry fuel burned	Starved air conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, spruce wood		Benz(a)pyrene	50328	0.05 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, spruce wood		Benz(a)pyrene	50328	0.62 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, birch wood		Benzene	71432	67.8 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, birch wood		Benzene	71432	1286 mg/kg dry fuel burned	Starved air conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, spruce wood		Benzene	71432	269 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Wood combustion, residential		Woodstove without baffle		Aluminum	7429905	1.5 g/Mg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Wood combustion, residential		Woodstoves		Manganese	7439965	1.0 lb/ton wood burned	Control status and basis unspecified	94
Wood combustion, residential		Fireplaces		Manganese	7439965	1.0 lb/ton wood burned	Control status and basis unspecified	94
Wood combustion, residential		Woodstove without baffle		Manganese	7439965	0.19 g/Mg wood burned	Uncontrolled, based on one study,	58

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Wood combustion, residential		Woodstove or fireplace		Manganese	7439965	1.0 lb/ton burned	nonbaffled stove burning green pine	94
Wood combustion, residential		Woodstove without baffle		Mercury	7439976	0.13 g/Mg wood burned	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Wood combustion, residential		Woodstove without baffle		Niobium	7439987	0.23 g/Mg wood burned	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Wood combustion, residential		Woodstove without baffle		Nickel	7440020	1.7 g/Mg wood burned	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Wood combustion, residential		Woodstove without baffle		Antimony	7440360	0.023 g/Mg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Wood combustion, residential		Woodstove without baffle		Arsenic	7440382	0.13 g/Mg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Wood combustion, residential		Woodstove without baffle		Barium	7440393	0.2 g/Mg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Wood combustion, residential		Woodstove without baffle		Beryllium	7440417	0.0016 g/Mg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Wood combustion, residential		Woodstove without baffle		Boron	7440428	0.73 g/Mg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Wood combustion, residential		Woodstove without baffle		Cadmium	7440439	0.036 g/Mg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Wood combustion, residential		Woodstove without baffle		Chromium	7440473	0.90 g/Mg wood burned	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Wood combustion, residential		Woodstove without baffle		Cobalt	7440484	0.06 g/Mg wood burned	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Wood combustion, residential		Woodstove without baffle		Copper	7440508	0.17 g/Mg wood burned	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Wood combustion, residential		Woodstove without baffle		Vanadium	7440622	0.015 g/Mg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Wood combustion, residential		Fireplace		Acetaldehyde	75070	0.105 g/kg wood burned	Burning Jack Pine	130
Wood combustion, residential		Fireplace		Acetaldehyde	75070	0.200 g/kg wood burned	Burning cedar	130
Wood combustion, residential		Fireplace		Acetaldehyde	75070	0.08 g/kg wood burned	Burning red oak	130

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SEC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Wood combustion, residential		Fireplace		Acetaldehyde	75070	0.066 g/kg wood burned	Burning green pine	130
Wood combustion, residential		Non-baffled stove		Acetaldehyde	75070	0.1 - 0.2 g/kg wood burned	Burning green oak or green pine	130
Wood combustion, residential		Woodstove		Acetaldehyde	75070	0.11 g/kg wood	Uncontrolled, average emission factor based on source tests	58
Wood combustion, residential		Fireplace		Acetaldehyde	75070	0.70 g/kg wood	Uncontrolled, average emission factor based on source tests	58
Wood combustion, residential		Small airtight woodstoves, birch wood		Acetaldehyde	75070	14.4 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, birch wood		Acetaldehyde	75070	992 mg/kg dry fuel burned	Starved air conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, spruce wood		Acetaldehyde	75070	17.2 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Wood combustion, residential		Small airtight woodstoves, spruce wood		Acetaldehyde	75070	315 mg/kg dry fuel burned	Normal high-temperature burning conditions, based on emission tests	57
Wood combustion, residential		Woodstove		Acetaldehyde	75070	0.24 lb/ton burned	Uncontrolled	94
Wood combustion, residential		Fireplace		Acetaldehyde	75070	1.4 lb/ton burned	Uncontrolled	94
Wood combustion, residential		Woodstove without baffle		Phosphorus	7723140	0.07 g/kg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Wood combustion, residential		Woodstove without baffle		Selenium	7782492	0.13 g/kg wood	Uncontrolled, based on one study, nonbaffled stove burning green pine	58
Wood combustion, residential		Woodstove		Isobutyraldehyde	78642	1.5 g/kg wood burned	Uncontrolled, average emission factor based on source tests	58
Wood combustion, residential		Fireplace		Isobutyraldehyde	78642	1.4 g/kg wood burned	Uncontrolled, average emission factor based on source tests	58
Wood preserving	2491	Thermal (pan) evaporation of pentachlorophenol wastewater		Ethyl benzene	100616	<5 mg/m ³ gas vented	Average value	6
Wood preserving	2491	Thermal (pan) evaporation of pentachlorophenol wastewater		Toluene	100683	<5 mg/m ³ gas vented	Average value	6
Wood preserving	2491	Thermal (pan) evaporation of pentachlorophenol wastewater		Phenol	108952	200 mg/m ³ gas vented	Average value	6

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Wood preserving	2491	Thermal (pan) evaporation of creosote wastewater		Phenol	108952	30 mg/sm ³ gas vented	Average value	6
Wood preserving	2491	Thermal (pan) evaporation of pentachlorophenol wastewater		Benzene	71432	<5 mg/sm ³ gas vented	Average value	6
Wood preserving	2491	Thermal (pan) evaporation of pentachlorophenol wastewater		Pentachlorophenol	87865	10,000 mg/sm ³ gas vented	Average value	6
Wood preserving	2491	Thermal (pan) evaporation of creosote wastewater		Pentachlorophenol	87865	2 mg/sm ³ gas vented	Average value	6
Wood preserving	2491	Thermal (pan) evaporation of pentachlorophenol wastewater		Naphthalene	91203	2000 mg/sm ³ gas vented	Average value	6
Wood preserving	2491	Thermal (pan) evaporation of creosote wastewater		Naphthalene	91203	2500 mg/sm ³ gas vented	Average value	6
Wood preserving	2491	Application and handling of 1,2,4-TCB containing preservative	307	Trichlorobenzene, 1,2,4-	120821	20 lbs/ton 1,2,4-TCB used	Based on emissions estimate of <1% lost of total use	48
Wood preserving	2491	Incineration of waste	307005	Ethyl benzene	100614	Not detectable	Controlled with baghouse	6
Wood preserving	2491	Incineration of waste	307005	Toluene	108883	Not detectable	Controlled with baghouse	6
Wood preserving	2491	Incineration of waste	307005	Phenol	108952	3.0 ug/sm ³ stack gas	Controlled with baghouse, average value	6
Wood preserving	2491	Penta treating cylinder fugitives	307005	Phenol	108952	0.55 mg/sm ³ gas leaked	Average of 3 measurements	6
Wood preserving	2491	Creosote treating cylinder fugitives	307005	Phenol	108952	0.11 mg/sm ³ gas leaked	One measurement	6
Wood preserving	2491	Incineration of waste	307005	Benzene	71432	Not detectable	Controlled with baghouse	6
Wood preserving	2491	Incineration of waste	307005	Pentachlorophenol	87865	Not detectable	Controlled with baghouse	6
Wood preserving	2491	Penta treating cylinder fugitives	307005	Pentachlorophenol	87865	3.6 mg/sm ³ gas leaked	Average of 3 measurements	6
Wood preserving	2491	Creosote treating cylinder fugitives	307005	Pentachlorophenol	87865	0.63 mg/sm ³ gas leaked	One measurement	6
Wood preserving	2491	Incineration of waste	307005	Naphthalene	91203	290 ug/sm ³ stack gas	Controlled with baghouse, average value	6

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Wood preserving	2491	Penta treating cylinder fugitives	307005	Naphthalene	91203	2.6 mg/air3 gas leaked	Average of 3 measurements	6
Wood preserving	2491	Cresote treating cylinder fugitives	307005	Naphthalene	91203	2.8 mg/air3 gas leaked	One measurement	6
Woven fabric finishing	226	Thermosol dyeing	330001	Dichloronitroaniline		0.60 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Dichloronitroaniline		3.3 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Thermosol dyeing	330001	Ethyl styrene		0.54 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Tetrachlorobenzenes		17 mg/kg fabric	Uncontrolled, based on one test	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Ethyl styrene		3.9 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Ethyl styrene		4.6 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Curing ovens - resin finish	330001	Butyl benzoate		600 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Curing ovens - resin finish	330001	Dichloronitroaniline		4.9 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Curing ovens - resin finish	330001	Diphenyl ethane	103297	1.4 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Diphenyl ethane	103297	3.1 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Curing oven - resin finish	330001	Bromochlorobenzene	106598	0.13 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Trichlorobenzenes	12002481	0.68 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Thermosol dyeing	330001	Trichlorobenzenes	12002481	360 mg/kg fabric	Uncontrolled, based on one test	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Trichlorobenzenes	12002481	0.064 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Curing ovens - resin finish	330001	Ethylhexanol, 2-	123057	2.1 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Thermosol dyeing	330001	Dimethyl phthalate	131113	1.9 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Dimethyl phthalate	131113	130 mg/kg fabric	Uncontrolled, test data	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Dimethyl phthalate	131113	21 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Curing ovens - resin finish	330001	Dimethyl phthalate	131113	0.083 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Dipropyl phthalate	131168	0.021 mg/kg fabric	Uncontrolled, test data	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Dipropyl phthalate	131168			52

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Woven fabric finishing	226	Heat setting	330001	Dipropyl phthalate	131168	0.33 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Divinyl benzene	1321740	0.43 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Curing ovens - resin finish	330001	Divinyl benzene	1321740	0.64 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Thermosol dyeing	330001	Bromodinitroaniline	1817738	1.2 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Thermosol dyeing	330001	Dichlorobenzenes	25321226	1.6 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Tenter frames - resin finishing	330001	Dichlorobenzenes	25321226	16 mg/kg fabric	Test at one plant	52
Woven fabric finishing	226	Curing ovens - resin finish	330001	Dichlorobenzenes	25321226	0.064 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Thermosol dyeing	330001	Bromodinitrobenzene	564485	3.3 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Bromodinitrobenzene	564485	21 mg/kg fabric	Uncontrolled	52
Woven fabric finishing	226	Curing ovens - resin finish	330001	Bromodinitrobenzene	564485	5.7 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Benzoic acid	65850	7.1 mg/kg fabric	Uncontrolled, test data	52
Woven fabric finishing	226	Curing ovens - resin finish	330001	Benzoic acid	65850	130 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Tenter frames - resin finishing	330001	Aluminum	7429905	1.3 mg/kg fabric	Uncontrolled, average of four tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Aluminum	7429905	0.11 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Heat setting	330001	Aluminum	7429905	0.02 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Curing oven - resin finish	330001	Aluminum	7429905	0.018 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Tenter frames - resin finishing	330001	Manganese	7439965	0.083 mg/kg fabric	Uncontrolled, average of four tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Manganese	7439965	0.029 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Heat setting	330001	Manganese	7439965	0.011 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Curing oven - resin finish	330001	Manganese	7439965	0.074 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Tenter frames - resin	330001	Polybenzene	7439987	0.43 mg/kg fabric	Uncontrolled, average of three tests	52

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Woven fabric finishing	226	finishing	330001	Molybdenum	7439987	0.030 mg/kg fabric	tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Molybdenum	7439987	0.030 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Heat setting	330001	Molybdenum	7439987	0.24 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Curling oven - resin finish	330001	Molybdenum	7439987	0.067 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Tenter frames - resin finishing	330001	Nickel	7440020	0.41 mg/kg fabric	Uncontrolled, average of four tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Nickel	7440020	0.091 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Heat setting	330001	Nickel	7440020	0.062 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Tenter frames - resin finishing	330001	Silver	7440224	0.19 mg/kg fabric	Uncontrolled, average of four tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Silver	7440224	0.60 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Heat setting	330001	Silver	7440224	0.013 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Thermosol dyeing	330001	Strontium	7440246	0.0029 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Heat setting	330001	Strontium	7440246	0.0034 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Tenter frames - resin finishing	330001	Tin	7440315	1.9 mg/kg fabric	Uncontrolled, average of four tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Tin	7440315	0.34 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Heat setting	330001	Tin	7440315	0.81 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Curling oven - resin finish	330001	Tin	7440315	0.78 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Heat setting	330001	Titanium	7440326	0.0004 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Tenter frames - resin finishing	330001	Antimony	7440360	0.63 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Antimony	7440360	0.062 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Heat setting	330001	Antimony	7440360	0.057 mg/kg fabric	Uncontrolled, based on test data	52

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Woven fabric finishing	226	Curing oven - resin finish	330001	Antimony	7440360	0.086 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Tenter frames - resin finishing	330001	Barium	7440393	0.04 mg/kg fabric	Uncontrolled, average of four tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Barium	7440393	0.039 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Heat setting	330001	Barium	7440393	0.0036 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Curing oven - resin finish	330001	Barium	7440393	0.019 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Tenter frames - resin finishing	330001	Beryllium	7440417	0.0096 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Thermosol dyeing	330001	Beryllium	7440417	0.00019 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Heat setting	330001	Beryllium	7440417	0.0065 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Curing oven - resin finish	330001	Beryllium	7440417	0.0043 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Tenter frames - resin finishing	330001	Boron	7440428	0.075 mg/kg fabric	Uncontrolled, average of four tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Boron	7440428	0.077 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Heat setting	330001	Boron	7440428	0.0025 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Curing oven - resin finish	330001	Boron	7440428	0.037 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Tenter frames - resin finishing	330001	Cadmium	7440439	0.019 mg/kg fabric	Uncontrolled, average of four tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Cadmium	7440439	0.0017 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Heat setting	330001	Cadmium	7440439	0.0046 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Curing oven - resin finish	330001	Cadmium	7440439	0.029 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Tenter frames - resin finishing	330001	Chromium	7440473	0.53 mg/kg fabric	Uncontrolled, average of four tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Chromium	7440473	0.12 mg/kg fabric	Uncontrolled, average of three tests, total chromium	52

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SEC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Woven fabric finishing	226	Heat setting	330001	Chromium	7440473	0.017 mg/kg fabric	Uncontrolled, based on test data, total chromium	52
Woven fabric finishing	226	Curing oven - resin finish	330001	Chromium	7440473	0.25 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Tenter frames - resin finishing	330001	Cobalt	7440484	0.086 mg/kg fabric	Uncontrolled, average of four tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Cobalt	7440484	0.0051 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Heat setting	330001	Cobalt	7440484	0.017 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Curing oven - resin finish	330001	Cobalt	7440484	0.018 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Tenter frames - resin finishing	330001	Copper	7440508	0.26 mg/kg fabric	Uncontrolled, average of four tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Copper	7440508	4.0 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Heat setting	330001	Copper	7440508	0.0061 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Curing oven - resin finish	330001	Copper	7440508	0.50 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Heat setting	330001	Vanadium	7440422	0.0021 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Tenter frames - resin finishing	330001	Zinc	7440666	0.63 mg/kg fabric	Uncontrolled, average of four tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Zinc	7440666	0.099 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Heat setting	330001	Zinc	7440666	0.074 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Curing oven - resin finish	330001	Zinc	7440666	0.76 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Tenter frames - resin finishing	330001	Phosphorus	7723140	1.8 mg/kg fabric	Uncontrolled, average of four tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Phosphorus	7723140	0.17 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Heat setting	330001	Phosphorus	7723140	0.095 mg/kg fabric	Uncontrolled, based on test data	52

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Woven fabric finishing	226	Curing oven - resin finish	330001	Phosphorus	7723140	0.39 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Anthraquinone	84651	9.6 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Anthraquinone	84651	3.1 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Curing ovens - resin finish	330001	Anthraquinone	84651	6.5 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Diethyl phthalate	84662	0.0045 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Diethyl phthalate	84662	0.34 mg/kg fabric	Uncontrolled, test data	52
Woven fabric finishing	226	Heat setting	330001	Diethyl phthalate	84662	0.25 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Dibutyl phthalate	84742	1.4 mg/kg fabric	Uncontrolled, test data	52
Woven fabric finishing	226	Heat setting	330001	Dibutyl phthalate	84742	0.41 mg/kg fabric	Uncontrolled, based on test data	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Siloxane	9016006	0.95 mg/kg fabric	Uncontrolled, one test	52
Woven fabric finishing	226	Thermosol dyeing	330001	Naphthalene	91203	1.0 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Naphthalene	91203	1.7 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Curing ovens - resin finish	330001	Naphthalene	91203	3.0 mg/kg fabric	Uncontrolled, average of three tests	52
Woven fabric finishing	226	Thermosol dyeing	330001	Biphenyl	92524	3.3 mg/kg fabric	Uncontrolled, average of two tests	52
Woven fabric finishing	226	Tenter frames - resin finish	330001	Biphenyl	92524	50 mg/kg fabric	Uncontrolled, test data	52
Woven fabric finishing	226	Curing ovens - resin finish	330001	Biphenyl	92524	3.3 mg/kg fabric	Uncontrolled, average of three tests	52
Xylene disproportionation production	2865	Process - general	301	Toluene	108883	5.0 x 10E-5 lb/lb used	Engineering estimate	13
Xylene disproportionation production	2865	Fugitive	301	Toluene	108883	5.0 x 10E-5 lb/lb used	Engineering estimate	13
Xylene disproportionation production	2865	Storage	407036	Toluene	108883	1.0 x 10E-4 lb/lb used	Engineering estimate	13
Xylene isomer production: m-xylene	2869	Process emissions	301258	Xylene	1330207	1.58 kg/Mg m-xylene produced	Engineering judgement, Hydroscience	13

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Xylene isomer production: m-xylene	2869	Storage emissions	301258	Xylene	1330207	0.12 kg/Mg m-xylene produced	Engineering judgment, Hydroscience	13
Xylene isomer production: m-xylene	2869	Fugitive emissions	301258	Xylene	1330207	0.30 kg/Mg m-xylene produced	Engineering judgment, Hydroscience	13
Xylene isomer production: o-xylene	2869	Storage emissions	301258	Xylene	1330207	0.08 kg/Mg o-xylene produced	From Texas Air Control Board Emissions Survey	13
Xylene isomer production: o-xylene	2869	Fugitive emissions	301258	Xylene	1330207	0.38 kg/Mg o-xylene produced	From Texas Air Control Board Emissions Survey	13
Xylene isomer production: o-xylene	2869	Process emissions	301258	Xylene	1330207	2.09 kg/Mg o-xylene produced	Based on inventory by Texas Air Control Board	13
Xylene isomer production: p-xylene	2869	Process emissions	30125810	Xylene	1330207	1.14 kg/Mg p-xylene produced	Based on inventory by Texas Air Control Board	13
Xylene isomer production: p-xylene	2869	Storage emissions	30125810	Xylene	1330207	0.19 kg/Mg p-xylene produced	Based on inventory by Texas Air Control Board	13
Xylene isomer production: p-xylene	2869	Fugitive emissions	30125810	Xylene	1330207	0.24 kg/Mg p-xylene produced	Based on inventory by Texas Air Control Board	13
Zinc smelting	3332	Entire process	303010	Radionuclides		110 nCi U-238/metric ton Zn	Rough estimate, controlled with baghouse, fabric filter, acid plant	37
Zinc smelting	3332	Entire process	303010	Radionuclides		110 nCi U-234/metric ton Zn	Rough estimate, controlled with baghouse, fabric filter, acid plant	37
Zinc smelting	3332	Entire process	303010	Radionuclides		56 nCi Th-230/metric ton Zn	Rough estimate, controlled with baghouse, fabric filter, acid plant	37
Zinc smelting	3332	Entire process	303010	Radionuclides		83 nCi Re-226/metric ton Zn	Rough estimate, controlled with baghouse, fabric filter, acid plant	37
Zinc smelting	3332	Entire process	303010	Radionuclides		270 nCi Pb-210/metric ton Zn	Rough estimate, controlled with baghouse, fabric filter, acid plant	37
Zinc smelting	3332	Entire process	303010	Radionuclides		270 nCi Po-210/metric ton Zn	Rough estimate, controlled with baghouse, fabric filter, acid plant	37
Zinc smelting	3332	Entire process	303010	Radionuclides		45 nCi Th-232/metric ton Zn	Rough estimate, controlled with baghouse, fabric filter, acid plant	37
Zinc smelting	3332	Entire process	303010	Radionuclides		45 nCi Re-226/metric ton Zn	Rough estimate, controlled with baghouse, fabric filter, acid plant	37

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SEC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Zinc smelting	3333	Entire process	303030	Radionuclides		8.0 nCi U-238/metric ton Zn	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Zinc smelting	3333	Entire process	303030	Radionuclides		5.3 nCi U-234/metric ton Zn	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Zinc smelting	3333	Entire process	303030	Radionuclides		20 nCi Th-230/metric ton Zn	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Zinc smelting	3333	Entire process	303030	Radionuclides		64 nCi Ra-226/metric ton Zn	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Zinc smelting	3333	Entire process	303030	Radionuclides		4000 nCi Rn-222/metric ton Zn	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Zinc smelting	3333	Entire process	303030	Radionuclides		360 nCi Pb-210/metric ton Zn	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Zinc smelting	3333	Entire process	303030	Radionuclides		21 nCi Po-210/metric ton Zn	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Zinc smelting	3333	Entire process	303030	Radionuclides		4.8 nCi Th-232/metric ton	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Zinc smelting	3333	Entire process	303030	Radionuclides		4.8 nCi Th-230/metric ton	Rough estimate, electrolytic reduction controlled with cyclone and SO2 plant	39
Zinc smelting	3333	Entire process	303030	Radionuclides		3.7 nCi U-238/metric ton Zn	Rough estimate, electrolytic reduction, controlled with cyclones, ESP, and SO2 plant	37
Zinc smelting	3333	Entire process	303030	Radionuclides		3.7 nCi U-234/metric ton Zn	Rough estimate, electrolytic reduction, controlled with cyclones, ESP, and SO2 plant	37
Zinc smelting	3333	Entire process	303030	Radionuclides		1.8 nCi Th-230/metric ton Zn	Rough estimate, electrolytic reduction, controlled with cyclones, ESP, and SO2 plant	37

INDUSTRIAL PROCESS	SIC CODE	EMISSION SOURCE	SCC	POLLUTANT	CAS NUMBER	EMISSION FACTOR	NOTES	REFERENCE
Zinc smelting	3333	Entire process	303030	Radionuclides		2.7 nCi Ra-226/metric ton Zn	Rough estimate, electrolytic reduction, controlled with cyclones, ESP, and SO2 plant	37
Zinc smelting	3333	Entire process	303030	Radionuclides		9.2 nCi Pb-210/metric ton Zn	Rough estimate, electrolytic reduction, controlled with cyclones, ESP, and SO2 plant	37
Zinc smelting	3333	Entire process	303030	Radionuclides		0.92 nCi Po-210/metric ton Zn	Rough estimate, electrolytic reduction, controlled with cyclones, ESP, and SO2 plant	37
Zinc smelting	3333	Entire process	303030	Radionuclides		1.1 nCi Th-232/metric ton Zn	Rough estimate, electrolytic reduction, controlled with cyclones, ESP, and SO2 plant	37
Zinc smelting	3333	Entire process	303030	Radionuclides		1.1 nCi Ra-226/metric ton Zn	Rough estimate, electrolytic reduction, controlled with cyclones, ESP, and SO2 plant	37

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